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KOPPERS
BY-PRODUCT COKE OVENS

The first Koppers by-product coke plant in America was built at Joliet, Ill., in 1908. At that time, approximately FOUR MILLION tons of coal per annum were carbonized in by-product coke ovens. Today, approximately SIXTY MILLION tons of coal per annum are carbonized in by-product ovens.

Koppers ovens in operation today—totalling over six thousand four hundred—have a carbonizing capacity of FORTY-TWO MILLION tons of coal per annum. In other words, SEVENTY-FIVE PER CENT of the increased by-product coking capacity is in Koppers ovens.

The development in the method of manufacturing coke was an economic one—just as logical as the development in the methods of manufacturing iron and steel; and this astounding growth of the Koppers by-product oven was the recognition by the iron and steel industry generally that the Koppers system of by-product coking and by-product recovery was the perfecting of this development to the highest point of efficiency.

OUTSTANDING FEATURES OF THE KOPPERS OVEN ARE:

First: Strong construction—which means long life and low repair costs.

Second: Perfect heat control and distribution—insuring the most flexible operation and the best results in coke quality and quantity of by-products.

Third: Ability to heat ovens either with coke oven gas or with outside gases, such as producer gas, water gas or blast furnace gas—thus releasing all the rich coke oven gas for use elsewhere. This principle is embodied in the Koppers "Combination" Oven.

Fourth: Accessibility of all parts of oven for inspection, thus making it easy to correct any irregularities which might affect operating results.

Fifth: Simplicity of operation—resulting in low labor costs.

Sixth: Ability to make satisfactory blast furnace and foundry coke from the widest range of coals.

THE KOPPERS COMPANY
PITTSBURGH, PA.

DESIGNERS AND BUILDERS OF BY-PRODUCT COKE AND GAS OVEN PLANTS

Vol. LXVIII THE IRON TRADE REVIEW No. 10
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Steel Market Still Is Drifting

Lower Prices of Independent Mills Ineffective in Stimulating General Buying—Automobile Builders Release More Tonnage—Steel Corporation Operations Decline Further—Lake Ore Reductions Discussed—Ingot Output Again Falls

STEEL prices remain in a state of flux pending the appearance of sufficient tonnage to induce producers to establish a definite trading basis. As it is, numerous mills, barring the Steel corporation plants, are meeting the situation as they find it necessary to protect themselves. Apart from a few of the more aggressive interests, however, they are not disposed to press continuing concessions upon indifferent buyers. Consequently a waiting policy generally is being adopted and the market is in a drifting stage.

Widely circulated reports that a large Buffalo independent producer after naming lower prices has readopted the Steel corporation schedule, are misleading. This interest never had definitely committed itself to any fixed list and finding little business to be had at present, it is modifying any efforts to increase operations at the expense of prices. Accordingly, its mill schedules are declining. Generally speaking, however, the independent mills by reason of their reduced prices, have been able to obtain a larger fraction of the going tonnage and their operating position has been bettered to the extent permitted by a sluggish buying situation. Recent bookings by the Midvale Steel & Ordnance Co. have been at the rate of 50 per cent of its Johnstown plant capacity. Sheet production in the Mahoning valley, while only 32 per cent is at the best level since early January.

Still Cuts Output

Steel corporation operations are drooping steadily and this week are not over 50 to 60 per cent. The Illinois Steel Co. has put out three more blast furnaces and the Carnegie Steel Co. five additional. The American Steel & Wire Co. has only three of nine furnaces in commission at the present time. The Gary rail mill is operating at the highest rate since it was built, producing around 20,000 tons weekly.

Steel ingot production for the entire industry in February fell off approximately 12 per cent from January, or in about the same degree as pig iron. Total February steel output is indicated to have been at the rate of 26,630,000 tons annually compared with a rate of 31,520,000 tons in January.

THE IRON TRADE REVIEW'S composite iron and steel market average this week is $45.53 compared with $46.65 last week, $47.10 two weeks ago and $52.75, the first week of this year.

Ore Revision Unsettled

General agreement that lake iron ore prices are to be reduced for the approaching season now is entertained by producers. The amount of this cut still is undetermined and awaits upon expected revision in lake freights and other factors. Further wage reductions at the mines are likely. The beginning of the buying movement and the announcement of ore prices is not expected for some weeks.

Following precedent in other weak market periods, the American Radiator Co. continues to be an active receptive buyer of pig iron at its own offers and its recent operations have netted it a considerable aggregate tonnage. Recently this buyer has been seeking up to 15,000 tons at Buffalo at a price of $25 and while some tonnage has been obtained from producers there at this figure, the furnaces generally are not willing to accept such offers. The iron market continues dull and soft.

Auto Demand Is Better

Further releases of suspended orders by automobile builders have been received by sheet mills at Pittsburgh and Youngstown, by strip mills at Pittsburgh and by parts manufacturers at Cleveland. Some new buying from this source also has appeared. A 2400-ton plate order placed by a western Pennsylvania tank builder aroused keen competition and went to an independent mill under 2.00c Pittsburgh, the exact figure being indefinite. Reports continue that some mills will go to 1.90c on plates, shapes and bars on attractive tonnage. The sheet market reflects weakness at prices of 3.85c to 4.00c on black, 3.00c on blue annealed and 5.00c on galvanized. Some makers again have reduced rivets $3 a ton.

British pig iron makers have made reductions approximating $8 to $9 per ton which are almost unprecedented in size according to the weekly cable report. Iron bars and skelp also have been sharply lowered. Welsh railroads have bought Belgian rails almost $25 per ton under the home mill price.

THE IRON TRADE REVIEW

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Mexico Looms as Equipment Buyer

INDUSTRIAL America will watch with extreme interest the progress made by Mexican interests in buying equipment for National Railways of Mexico. During the past few days bids have been asked on cars, locomotives, cranes, machinery, machine tools, etc., involving an aggregate expenditure of about $10,000,000. This is the largest export business on which manufacturers of this country have been asked to bid in many months, and if for nothing else, the inquiry signifies the willingness of Mexico to trade with the United States.

Since the seating of General Obregon as president, conditions in Mexico seem to have taken a change for the better. The present government has the appearance of one of stability and although the United States as yet has not recognized it, both countries are on friendly terms. Only a few weeks have elapsed since William Gibbs McAdoo, former secretary of the treasury, conferred with President Obregon on the matter of financing, and as a result, the inquiry for equipment for the National Railways of the country has now been placed in the market. Business men of this country recognize the good which will be derived from the rebuilding of the rail system of Mexico. The productive oil fields of the nation, in which alone millions of American dollars are invested, as well as other natural resources, will be more extensively developed. The rehabilitation of the nation will require not only capital, but also tools, machinery and other products. It will pay American business men of broad vision and judgment to closely watch events in Mexico.

Trend of Pig Iron Production Shown

AS PIG iron production gradually has tapered off for the past five months or since October, merchant tonnage has declined in a greater proportion than that of nonmerchant. This fact was further accentuated by the February production which showed the lowest ratio of merchant to nonmerchant tonnage in years, and this in spite of the fact that the ratio of the number of merchant to nonmerchant stacks blown out was reversed. As stacks began to go out of blast in October, the ratio was approximately one to one; it increased in November to three to two; finally reaching the climax in December when it was approximately nine to four. During the next two months this relationship declined to five merchant to four nonmerchant in January and finally reached about one to three in February.

As illustrating the declining ratio of merchant to nonmerchant production, the following table shows the statistics for the last five months and the average figure for the first nine months of last year:

Month	Merchant	Nonmerchant	Ratio of merchant to nonmerchant percent
9 months, 1920	7,067,812	20,052,458	35.3
October	818,166	2,430,656	33.6
November	705,014	2,190,217	32.2
December	586,466	2,076,693	28.2
January, 1921..	474,135	1,940,618	24.4
February	322,220	1,604,868	21.0

During the first nine months of 1920 these proportions of tonnage varied from 31.6 per cent in January to 38.9 per cent in April. Thus the February, 1921, figure of 21 per cent showed a drop of approximately one-third in 13 months. Curtailment of foundry operations has been the prime factor in the decreased output of merchant iron for from this source comes the bulk of demand for iron for sale. Going back still further, the slump in foundry operations can be assigned in considerable measure to the sharp recession of the automobile industry which has come to exert a large influence upon the production of castings.

Whether this same decline in the ratio of merchant and nonmerchant iron will be shown in the March production is questionable. Certainly merchant tonnage will be no longer than that of February except to the extent that March is a three-day longer month. Judging from the foregoing

study, however, it is indicated nonmerchant iron will register the greater loss in March. This fact will contribute materially toward restoring the relationships of merchant to nonmerchant output, to more nearly normal.

Railway Workers Inconsistent

KILLING the goose that laid the golden egg has served as a symbol to point out fatal mistakes where the beneficiary of some favor has made impossible a continuance of his good fortune. A case in point is found in the present attitude of railway workers. A general effort seems to be to urge such action as will prevent railroads earning enough to pay present wages, at the same time opposing any reduction in wages.

The Winslow bill recently passed by congress, making possible partial payments on the sums due from the government to railroads, was opposed by the brotherhoods. The reasoning behind this attitude is not clear. They have accused the roads of seeking to break up their organizations, and on the other hand they seem to be advocating every course that would completely wreck the roads.

The only inference possible is that they desire conditions to be created that will force government ownership, under which they might by their political pressure, force unreasonable wages and conditions.

While bolshevist acts in Russia are denounced by organized labor some of its policies in this country are such as would lead to similar conditions in a modified degree if allowed to proceed to their logical conclusion. Autocratic governmental and thereby uneconomic control of everything in Russia has materially contributed to producing the chaos now existing there. Opposition to orderly and necessary economic readjustments usually is short-sighted and more costly in the end.

Industry To Be Emancipated

BUSINESS and industry for some months have been watching apprehensively to see if the "control" habit acquired by the federal government in the war period was chronic. It now appears safe to predict, barring the contingencies which none may foresee, that business and industry may chart their courses for the next four years, without fear of undue molestation by the government and less trammelled by official interference.

The session of congress which expired at noon March 4 saw the railroads turned back to their private owners and practically all of the war control measures, including the Lever act, finally repealed. Also, it saw a change in sentiment which prevented the passage of bills designed to control industry still further, notably the Calder coal and the Kenyon packer control bills which were very drastic. Still another hopeful sign may be found in the President's inaugural address, in which he stated: "I speak * * * for lightened tax burdens, for sound commercial practices, for adequate credit facilities * * * for the omission of unnecessary interference of government with business, for an end to government's experiment in business and for more efficient business in government administration."

It is axiomatic, that nation is best governed which is least governed. This also is applicable to business. Private enterprise and initiative must have the assurance that their best efforts will not be thwarted by a paternalistic or a prying government, and that the legitimate gains of private building will recur to the builder. Business and industry of the United States today are in vital need of such confidence, and both the new executive and the new congress give ample evidence of favoring a sensible and wholesome policy in this regard.

Exports Wait on War Settlements

IMPORTS at the port of New York during January showed a marked decrease, while exports increased considerably. In this day of depressed business conditions this is significant. The reports of the collector show that by far the larger share of the exports were intended for Germany. This is a situation which demands careful analysis as, on its face it is indicated exports are running counter to economic conditions. Due to the depressed condition of the mark, Germany must pay relatively more for goods purchased of the United States than any other nation.

In times of emergency, such as the present, it is absolute necessity that determines the trend of trade and not the international balance of trade. A similar situation determined the volume of American exports to Europe during the period of the war. That similar influences are exerting themselves on the trade of this country today is sufficient proof that a normal basis is far from having been attained. Such normal conditions will not be restored in international trade until the settlement of the war indemnities is assured.

While Germany is buying so heavily of the United States, it is found that France is selling more to this country. French exports to the United States were twice as large during 1920 as they were during the year previous. French imports consisted largely of gowns, textiles and luxuries. Nevertheless they denote a sincere effort on the part of the French to repay a part of the large debt incurred during the war. Until the present dislocation of the balance of trade is more nearly repaired it is unreasonable to believe that constructive international commerce is possible. Until then, we will be unable to estimate with any degree of accuracy what permanent trade possibilities are open to us abroad.

Iron and Steel Prices

CORRECTED TO WEDNESDAY NOON—SCRAP, WAREHOUSE, ORE AND OTHER PRICES ON PAGES 730 AND 734

Pig Iron

Bessemer, valley	$27.00
Bessemer, Pittsburgh	28.96
Basic valley	25.00
Basic, Pittsburgh	26.96
Basic, Buffalo	27.00 to 29.00
Basic, delivered, eastern Pa.	26.50 to 27.50
Malleable, valley	27.00 to 27.50
Malleable, Pittsburgh	28.96 to 29.46
Malleable, Chicago	26.50 to 28.50
Malleable, Buffalo furnace	27.50 to 29.50
Malleable, del., eastern Pa.	29.90 to 31.24

FOUNDRY IRON SILICONS

No. 2 Northern	1.75 to 2.25
No. 2 Southern foundry	1.75 to 2.25
No. 2X Eastern and Virginia	2.25 to 2.75
No. 1X Eastern	2.75 and up
No. 1 Chicago	2.25 to 2.75
No. 2 foundry Eastern	1.75 to 2.25

No. 1X, eastern del. Phila.	$28.34 to 30.54
No. 1X, Buffalo	30.00 to 31.00
No. 2 foundry, valley	26.00 to 27.00
No. 2 foundry, Pittsburgh	27.96 to 29.96
No. 2 foundry, Buffalo	27.00 to 29.00
No. 2 foundry, Chicago	26.00 to 28.00
No. 2 foundry, Ironton furnace	28.00 to 29.00
No. 2 foundry, Cleveland	27.00 to 28.00
No. 2X, eastern de. Phila.	26.34 to 29.54
No. 2X, eastern N.J.,tidewater	27.32 to 29.54
No. 2X, eastern del. Boston	31.06 to 34.06
No. 2X foundry, Buffalo fur.	28.25 to 30.25
No. 2X, Buffalo del. Boston	33.71 to 34.71
No. 2 foundry del. Phila.	25.34 to 28.54
No. 2 foundry, N.J., tidewater	26.32 to 28.54
No. 2 southern, Birmingham	26.50 to 27.50
No. 2 southern, Cincinnati	31.00 to 32.00
No. 2 southern, Chicago	31.66 to 33.66
No. 2 southern, Philadelphia	35.16 to 36.16
No. 2 southern, Cleveland	33.16 to 34.16
No. 2 southern, Boston	33.65 to 35.65
No. 2 southern, St. Louis	32.22 to 33.22
No. 2X, Virginia furnace	29.25
No. 2X, Virginia Philadelphia	34.99
No. 2X, Virginia Jersey City	35.54
No. 2X, Virginia, Boston	35.83
Gray forge, eastern Pa.	27.00 to 28.75
Gray forge, valley, Pitts	25.96 to 26.46
Low phos., standard, valley	43.00 to 44.00
Low phos., standard, Phila.	46.32 to 46.82
Low phos., Lebanon furnace	40.00
Charcoal, Superior, base, Chi.	38.50

Silvery Iron

8 per cent base at furnace

Jackson County, Ohio	$43.50
Tennessee, Chicago delivery	43.03
Ohio brands, Chicago	48.82

Bessemer Ferrosilicon

Jackson County, Ohio, furnace

10 per cent	$53.00
11 per cent	56.30
12 per cent	59.60

Coke

Connellsville furnace	$4.00 to 5.00
Connellsville foundry	5.00 to 6.00
Pocahontas furnace	8.50
Pocahontas foundry	9.00 to 10.00
New River furnace	7.00 to 8.00
New River foundry	9.00 to 11.00
Wise county furnace	6.50 to 8.00
Wise county foundry	6.50 to 8.50

Ferroalloys

Ferromanganese, 80 per cent, delivered, domestic metal	$89.00 to 95.00
Ferromanganese, 80 per cent, English, c.i.f. Atlantic port	nominal
Spiegel, 18 to 22 per cent furnace spot	34.00 to 37.00
Ferrosilicon, 50 per cent, contract delivered	92.00 to 95.00
Ferrosilicon, 50 per cent, spot delivered	76.00 to 90.00
Ferrotungsten, standard, per pound contained	55.00c to 60.00c
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, per pound contained, maker's plant	16.00c to 16.50c
Imported ferrochrome, 6 to 8 per cent carbon	nominal
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	5.00 to 6.75
Ferro carbon-titanium, carloads, producers plant, per net ton	$200.00

Semifinished Material

BILLETS AND BLOOMS

(4 x 4-inch)

Open-hearth, Pittsburgh	$38.00 to 42.00
Open-hearth, Youngstown	38.00 to 42.00
Open-hearth, Philadelphia	45.74 to 49.24
Bessemer, Pittsburgh	38.00 to 42.00
Bessemer, Youngstown	38.00 to 42.00
Forging, Pittsburgh	45.00 to 51.00
Forging, Philadelphia	53.24 to 54.24

SHEET BARS

Open-hearth, Pittsburgh	$38.00 to 42.00
Open-hearth, Youngstown	38.00 to 42.00
Bessemer, Pittsburgh	38.00 to 42.00
Bessemer, Youngstown	38.00 to 42.00

SLABS

Pittsburgh and Youngstown	$38.00 to 42.00

WIRE RODS AND SKELP

Wire rods, Pittsburgh	$52.00 to 57.00
Grooved skelp, Pittsburgh	2.35c to 2.45c
Universal skelp, Pittsburgh	2.45c to 2.50c
Sheared skelp, Pittsburgh	2.55c to 2.65c

Shapes, Plates and Bars

Structural shapes, Pittsburgh	2.00c to 2.45c
Structural shapes, Phila.	2.35c to2.80c
Structural shapes, New York	2.38c to 2.83c
Structural shapes, Chicago	2.48c to 2.83c
Tank plates, Pittsburgh	1.95c to 2.65c
Tank plates, Chicago	2.38c to 3.03c
Tank plates, Philadelphia	2.35c to 3.00c
Tank plates, New York	2.38c to 3.03c
Bars, soft steel, Pittsburgh	1.95c to 2.65c
Bars, soft steel, Chicago	2.38c to 2.73c
Bars, soft steel, New York	2.38c to 2.73c
Bars, soft steel, Philadelphia	2.35c to 2.70c
Bar iron, common, Phila.	2.70c
Bar iron, common, Chicago	2.65c to 2.68c
Bar iron, common, Cleveland	3.75c to 4.00c
Bar iron, common, New York	2.73c
Bar iron, common, Pittsburgh	2.70c to 3.06c
Hard steel bars, Chicago	2.50c to 2.65c

Rails, Track Material

Standard bessemer rails, mill	$45.00
Standard open-hearth rails, mill	47.00
Relaying rails, light, St. Louis	30.00 to 35.00
Relaying rails, Pittsburgh	43.00 to 46.00
Angle bars, Pittsburgh base	2.45c
Angle bars, Chicago base	2.75c
Light rails, 25 to 45, mills	2.15c to 2.50c
Spikes, railroad, Pittsburgh	3.30c to 3.65c
Spikes, railroad, Chicago	4.03c
Track bolts, Pittsburgh	4.60c to 5.50c
Track bolts, Chicago	4.98c to 6.38c
Tie plates, Chicago	3.00c to 3.50c

Wire Products

(100 lbs. to jobbers, carloads; retailers, 10c more)

Wire nails, Pittsburgh	$3.00 to 3.25
Plain wire, Pittsburgh	3.00 to 3.25
Galvanized wire, Pittsburgh	3.70 to 3.95
Barbed wire, painted, Pitts.	3.15 to 3.40
Barbed wire, galv., Pitts.	3.85 to 4.10
Polished staples, Pittsburgh	3.15 to 3.40
Galvanized staples, Pitts.	3.85 to 4.10
Coated nails per count keg, Pitts.	2.85 to 3.35

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Chain, Piling, Strip Steel

Chain, 1 in. proof coil, Pitts.	6.75c
Sheet piling base, Pitts.	2.00c to 2.55c

Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base per 100 pounds 5.65c to 6.25c

Sheets

SHEET MILL BLACK

No. 28, open-hearth, Pitts.	3.85c to 4.35c
No. 28, bessemer, Pittsburgh	3.85c to 4.35c
No. 28, open-hearth, Chicago	4.23c to 4.73c
No. 28, open-hearth, Phila.	4.20c to 4.70c

TIN MILL BLACK

No. 28, open-hearth, Chicago	3.85c to 4.35c
No. 28, open-hearth, Phila.	3.85c to 4.35c

GALVANIZED

No. 28, open-hearth, Pitts.	5.00c to 5.70c
No. 28, bessemer, Pittsburgh	5.00c to 5.70c
No. 28, open-hearth, Chicago	5.38c to 6.08c
No. 28, open-hearth, Phila	5.35c to 6.05c

BLUE ANNEALED

No. 10, open-hearth, Pitts.	3.20c to 3.55c
No. 10, bessemer, Pittsburgh	3.20c to 3.55c
No. 10, open-hearth, Chicago	3.38c to 3.93c
No. 10, open-hearth, Phila.	3.50c to 3.90c

Tin Plate

(Per 100 lb. box)

Tin plate, coke base, Pittsburgh	$7.00

Iron and Steel Pipe

Base Discounts Pittsburgh to Jobbers Carloads	Black	Galv.
⅜ to 3 in., butt steel	57½	44
¼ to 1½ in., butt iron	29½	13½

Full pipe schedule page 734.

Boiler Tubes

Steel, 3½ to 4½ inches, c. l.	40½ off
Iron, 3½ to 4½ inches, c. l.	12 off

Full boiler tube schedule page 664.

Cast Iron Water Pipe

Without War Freight Tax

Class B Pipe

Four-inch, Chicago	69.10
Six-inch and over, Chicago	64.10
Four-inch, New York	73.30
Six-inch and over, New York	63.30
Four-inch, Birmingham	60.00
Six-inch and over, Birmingham	55.00
Three-inch, Birmingham	70.00

Class A pipe is $4 higher than Class B

Hoops, Bands, Shafting

Hoops, Pittsburgh	2.70c to 3.05c
Bands, Pittsburgh	2.70c to 3.05c
Hot rolled strip steel, Pittsburgh stamping quality	2.85c to 3.30c
Cold finished steel bars, Pittsburgh base	3.25c to 3.60c

Rivets

Structural rivets, Pittsburgh	3.70c to 3.75c
Boiler rivets, Pittsburgh	3.85c
Rivets, ⅞ in. and smaller, Pittsburgh	60-10 and 50 off

Nuts and Bolts

Prices f.o.b. Pittsburgh, Packages of 50

CARRIAGE BOLTS

(⅜ x 6 inches, smaller and shorter)

Rolled thread	60 off
Cut thread	50-10 off
Larger and longer	50-10 off

MACHINE BOLTS

(⅜ x 4 inches, hot pressed nuts)

Rolled thread	60-10-10 off
Cut thread	60-10 off
Larger and longer	60 off
Plow bolts Nos. 1, 2 and 3 heads	50-10-5 off
Other style heads	50-10-5+20%
Stove bolts in packages	75-10-10 off
Stove bolts in bulk	75-10-10-2½ off
Cold pressed semifinished hexagon nuts ⅜ in. and larger	70-10 off
Cold pressed semifinished hexagon nuts ⅞ in. and smaller	80 off
Gimlet and cone point lag screws	65 off

NUTS

(Up to 1¼ and 1⅜ inches inclusive)

Hot pressed, square blank	$3.25 off
Hot pressed, square tapped	3.00 off
Hot pressed, hexagon blank	3.25 off
Hot pressed, hexagon tapped	3.00 off
Cold pressed, square tapped	2.85 off
Cold pressed, square blank	3.10 off
Cold pressed, hexagon tapped	2.85 off
Cold pressed, hexagon blank	3.10 off

Prices Present and Past

Representative market figures yesterday, one month ago, three months ago and one year ago

Prices given in this table are those ruling on the largest percentage of sales, at the dates named

	Prices Mar. 9, 1921	Average prices Feb., 1921	Dec., 1920	Mar., 1920
PIG IRON—				
Bessemer, valley, del., Pittsburgh	$28.96	$30.96	$36.96	$43.40
Basic, valley, del., Pittsburgh	26.96	28.71	34.96	44.40
*No. 2 Foundry, val. del. Pitts.	27.96	29.96	37.56	43.40
*No. 2 Foundry, Chicago	26.00	28.65	37.00	43.00
Lake Superior charcoal, Chicago	38.50	38.50	51.50	57.50
Malleable, valley	27.00	28.75	36.00	43.75
Malleable, Chicago	26.50	29.15	37.50	43.50
*Southern, No. 2, Birmingham	26.50	27.90	38.00	40.00
*Southern Ohio, No. 2, Ironton	28.00	30.00	37.25	43.25
Basic eastern del. eastern Pa.	27.00	29.95	35.60	43.00
**No. 2X, Virginia furnace	29.25	31.25	40.05	43.25
**No. 2 X, eastern del., Phila.	27.00	31.05	38.75	45.68
Gray forge val., del. Pittsburgh	26.96	29.21	36.56	42.40
Ferromanganese, 80 per cent, del.	90.00	96.85	120.00	172.00
SEMIFINISHED MATERIAL—				
Sheet bars, bessemer, Pitts.	40.00	43.00	47.60	70.00
Sheet bars, open-hearth, Pitts.	40.00	43.00	47.60	72.50
Billets, bessemer, Pittsburgh	38.50	41.00	45.10	65.00
Billets, open-hearth, Pittsburgh	38.50	41.00	45.10	66.25
FINISHED MATERIAL—				
Steel bars, Pittsburgh	2.00	2.15	2.35	3.85
Steel bars, Chicago	2.38	2.52	2.73	3.03

	Prices Mar. 9, 1921	Average prices Feb., 1921	Dec., 1920	Mar., 1920
FINISHED MATERIAL—Continued				
Iron bars, Philadelphia	$2.70	$2.70	$4.05	$4.20
Iron bars, Chicago mill	2.63	2.65	3.45	3.50
Beams, Pittsburgh	2.10	2.30	2.45	3.25
Beams, Philadelphia	2.45	2.65	2.80	4.00
Beams, Chicago	2.58	2.72	2.85	3.63
Tank plates, Pittsburgh	2.00	2.35	2.65	3.75
Tank plates, Chicago	2.53	2.76	3.03	3.38
Tank plates, Philadelphia	2.45	2.70	3.00	4.25
Sheets, blk., No. 28, Pittsburgh	4.00	4.20	4.45	6.00
Sheets, blue anl., No. 10, Pitts.	3.00	3.35	3.65	5.50
Sheets, galv., No. 28, Pitts.	5.00	5.50	5.80	7.25
Wire nails, Pittsburgh	3.00	3.25	3.25	4.00
COKE—				
Connellsville furnace, ovens	4.50	4.85	6.20	6.00
Connellsville foundry, ovens	6.00	6.30	7.20	7.00
OLD MATERIAL—				
Heavy melting steel, Pittsburgh	15.00	15.00	17.20	28.00
Heavy melting steel, eastern Pa.	13.50	14.50	16.70	25.55
Heavy melting steel, Chicago	13.00	15.25	16.30	24.19
No. 1 wrought, eastern Pa.	19.50	20.50	20.90	36.50
No. 1 wrought, Chicago	14.00	15.90	16.60	30.00
Rerolling rails, Chicago	13.50	15.90	16.70	32.62

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.

Some Pig Iron Buying Being Done

Miscellaneous Orders Make a Better Showing—American Radiator Co. Closes More Tonnage on Offer and Seeks Up to 15,000 Tons at Buffalo—Lower Prices in East and Buffalo—Valley No. 2 at $26

Philadelphia, March 8.—A real test of the foundry iron market in the territory was afforded the past week when a Phillipsburg, N. J. consumer inquired for 500 tons of No. 2 plain (1.75c silicon) order was placed with a Schuylkill valley maker at $24.50 furnace. Two other eastern Pennsylvania makers quoted within 50 cents of this figure. This was the only sizable competitive business of the week. Other business included mainly small lots or involved specific brands and the prices done in thse sales ranged from $26 to $27 base eastern Pennsylvania furnace. Altogether, the week's total was small and consumers do not show much disposition to buy nor are there any indications of the development of a buying movement in the near future. An eastern consumer inquiring for basic iron takes the attitude the furnaces will have to quote lower than $25 delivered, but no maker yet has quoted as low as $25 furnace. A couple hundred tons of copper-free low phosphorus iron was sold at $41.50 eastern furnace. The week's transactions included a couple hundred tons of off-grade copper-bearing iron which went at a concession. Gray forge is nominal at 27.50 to $28.75 delivered, eastern Pennsylvania. The Empire Steel & Iron Co. furnace at Catasauqua, Pa., went out March 4. Only three eastern Pennsylvania merchant stacks now are left in blast.

Another Chicago Stack Out

Chicago, March 8.—Further curtailment of merchant pig iron production in the Chicago district results from the Illinois Steel Co. blowing out the stack at Milwaukee, which has been in steady operation up to the beginning of this week. Although no other merchant stacks have been blown out for several weeks past, their production is somewhat in excess of demand and some iron is being piled at most plants. Putting out the Milwaukee stack removes the Illinois Steel Co. from the merchant iron field for the present as the other stack at that plant has been idle for several years. Inquiry for iron is so slight that prices are almost nominal and the market has not had a test for some time. One producer holds a nominal quotation of $27 to $28, and has made a few small sales at the lower figure. Another producer is willing to take on business at $26, furnace. A sale of 200 tons of foundry iron was made within the past few days at $27, Chicago furnace. A malleable interest is in the market for about 1000 tons, which is being closed quietly at about the general level of the market. Another negotiation very much under cover involves about 2000 tons of foundry iron for an Ohio consumer, the iron probably to come from an Ohio furnace. It appears that part of the tonnage mentioned last week as being sold to a Wisconsin manufacturer was resale iron from a foundry located close to the consumer's plant and the furnace metal sold was in competition with that iron.

Orders Show Some Increase

Cleveland, March 8.—Some sellers report an increase in the total tonnage of pig iron orders booked the past week made up of scattered lots. Others are noting a growth of shipments. However the improvement in all particulars is not sufficient to lend much

Composite Market Average

Representing the Combined Average Prices Per Ton of Fourteen Leading Iron and Steel Products, Yesterday, One Week, One Month, Three Months, One Year and Seven Years Ago

March 9, 1921	March 2, 1921	February, 1921	December, 1920	March, 1920	March, 1914
$45.53	$46.65	$48.81	$53.45	$65.47	$23.60

encouragement and conditions are very sluggish. Inquiry is small. The market has settled again and $26 base valley apparently is the going price at present on any considerable tonnage. The Standard Sanitary Mfg. Co. bought 1000 tons for early delivery on this basis within the week. One seller reports aggregate bookings of 2000 to 3000 tons in the week and most of the valley iron included went at the $26 level. Another producer sold various lots at $26 base western Pennsylvania furnace. A third interest booked in the week 500 to 600 tons at $27 base lake furnaces. Cleveland makers are quoting $27 to $28 base furnace but have been entering practically no business. The American Radiator Co. continues to be an active prospective buyer at the figure it is willing to offer which is around $25 furnace but few producers as yet have been willing to accept that figure. This consumer in the week was negotiating with various furnaces for 5000 tons of two grades of foundry iron for Buffalo and closed for a part of this tonnage.

Southern Ohio Stocks Down

Cincinnati, March 7.—The pig iron market here continues extremely quiet although there has been a better movement of small lot tonnage and some new inquiries have appeared. The most conspicious of the latter are three for 500 tons each, in addition to 1000 tons sought late last week by the National Sanitary Mfg. Co., for Louisville shipment. This business has been closed, orders for 500 tons of Tennessee iron and 500 tons of Alabama foundry No. 2 having just been booked. These are for prompt delivery. The Sanitary company has been buying from time to time sufficient tonnage to slightly more than cover a 30 days' requirement. The Marting Iron and Steel Co. has announced the closing of its last stack at Ironton, leaving no furnaces now in blast on pig iron in the Southern Ohio district. In the face of low production and light stocks, it is apparent that melters are expecting to get iron at still lower prices.

Movement is Sluggish

Pittsburgh, March 8.—Sluggish improvement continues to characterize pig iron in this district. Sellers find the long sustained dullness without precedent and report only occasional sales where the amount involved reaches or exceeds 500 tons. The Standard Sanitary Mfg. Co., closed this week on 500 tons of No. 2 foundry iron (1.75 to 2.25 silicon) at $26 valley and also 500 tons of No. 2 at $27.25 valley for its New Briton, Pa. plant. Sales of 50 to 100 tons of that grade are fairly numerous, going to supply imperative needs of foundries. Single carloads have been sold at $26.50, $27 and $28 valley. On any sizable lot $26 valley is the going price. The Union Radiator Co., Johnstown, Pa., again has entered the market for 250 to 300 tons of No. 2 foundry. In the steelmaking grades minor activity is present. The Hanna Furnace Co. has changed the Cherry Valley furnace from foundry to basic and is shipping the entire make. The Hamilton, Ont., consumer which recently asked for 2000 tons of bessemer has withdrawn the inquiry, not being able to obtain acceptance of its offer of $26 valley. It is possible that $26.50 valley might have been done but the usual quotation was $27 valley. So far as reported the other Canadian consumer asking for 200 tons of bessemer has not closed. One large interest reports approximately 6000 tons of steelmaking iron was booked in February and a few orders involving varying tonnages have been taken so far this month at $25 and $27 valley for basic and bessemer respectively. A Pittsburgh furnace interest sold a round tonnage of malleable iron to a user located near Toledo at $27.50 valley in competition with Cleveland furnaces. This grade continues obtainable at $27 valley. Off-grade basic continues to be sold at $23 to $24 valley and doubtless tonnages could be placed with steel works furnaces at $22. A sale to Pittsburgh district user of 600 tons of special iron was made this week although details are not available. Another sale of over 500 tons of basic is reported having gone at $23 valley.

Boston Market Lifeless

Boston, March 8.—That New England pig iron stocks still are large is indicated from the low aggregate tonnage purchased during February and up to the present time in March. The rate of melt, low as it is, is many times greater than the rate at which new iron is being bought. The past week has been as dull as any other single week since the first of the year, and this show two things: One, that foundry activity throughout New England is far below normal and second that consumers generally feel that prices are going still lower. One furnace representative who recently made a survey of the field reports that at the present rate of production at foundries, existing stocks will practically carry through the first half. Buying for third quarter is expected to show an encouraging increase and it is likely that this movement will take place within the next month. Makers have not as yet offered iron in this district for third or fourth quarter, but some of the Pennsylvania furnaces have made such offers in other districts, and are understood to be in a fairly receptive mood for this business. Sales during the week in Boston have been practically negligible. A few carload lots were sold in New York for delivery to Connecticut points, and two cars were placed in Boston with a tentative transaction for 100 tons. Prices are soft. One eastern Pennsylvania furnace is understood to have offered iron at $26.50 base, furnace, and practically all would entertain offers of spot iron in quantity close to this figure. The only new phase in the pig iron market in Boston is the increasing willingness of the furnaces to make concessions on old contracts to secure delivery. In one case, a contract for $48 pig iron was adjusted through a concession of $10 was offered. In other cases, furnaces have reduced prices $7.

Buys at Nearly $24.50, Furnace

New York, March 8.—A Phillipsburg, N. J. melter was the largest buyer of pig iron during the past week in this district. This interest bought 500 tons of 1.75 to 2.25 silicon foundry from an eastern Pennsylvania maker. A Bridgeport, Conn., melter who was inquiring for a fair tonnage has decided not to buy against a large inquiry which it had before the trade here. In fact, consumers generally continue to show a disposition to buy as little as possible. One user, for instance, which had an inquiry out for nearly 1000 tons, placed a few carloads for prompt shipment and postponed action on the remainder. Altogether, business placed in this district during the past week did not exceed a total of 1500 to 2000 tons, practically all of which was foundry iron. The lowest price done on this business was slightly higher than $24.50, eastern Pennsylvania furnace, for 1.75 to 2.25 silicon foundry. Such prices, and, in fact, anything lower than $26.50, base, eastern Pennsylvania furnace, are regarded as exceptionally low and are brought out only in connection with large tonnages. A number of small orders were placed during the past week at around $27, base, eastern Pennsylvania furnace. The lowest price so far quoted on standard foundry iron at Buffalo, is $28, base, Buffalo, while the lowest so far quoted on stock iron in Virginia is $28, base, furnace. Buffalo and Virginia iron cut practically no figure in the market here at present. Some Alabama foundry can be had at $25, base, Birmingham, for shipment out of stock but no sales are reported.

Lower Prices at Buffalo

Buffalo, March 8.—Pig iron can be bought openly from Buffalo furnace at $28 to $30 and in at least one case a tonnage was sold several dollars below the inside figure. Some makers will accept tonnage lots at $27 base. One furnace which had sold a round tonnage the previous week, reported only 200 to 300 tons closed last week. This was straight furnace iron at $30 for 1.75 to 2.25 silicon. A total of 2275 tons of foundry was reported sold by another maker. This lot consisted of small tonnages. On the smaller lots $30 was obtained; on the larger, $29. A price of $29 was done on a 300 ton lot sold by a third furnace interest. Three or four inquiries totaling 1200 to 1500 tons are noted. Little market for foundry iron is present in view of so many foundries having closed on account of labor troubles. The American Radiator Co. has been an important buyer for its Buffalo plant closing for 3000 to 5000 tons of foundry grades at least during the past week.

Sales Still Lacking

St. Louis, March 7.—Sales of pig iron are at a minimum, and inquiries do not indicate much desire on the part of users to acquire material. A majority of the agencies here report their instructions to ship are distressingly small. The only new sizable inquiry is for 600 tons of malleable for a point well outside this district, for delivery over March, April and May. There are several others, the largest being for 150 tons of foundry, but no actual business has resulted. In this district the two leading producers, the Mississippi Valley Iron Co., and the St. Louis Coke & Chemical C are in full operation. Considerable difference of opinion exists relative to prices. Some unusually low offers have been heard of, two under $25, but the generally accepted range on No. 2 southern is from $25 to $27.50.

Small Orders Numerous

Birmingham, Ala., March 7.—The pig iron market in the South shows little improvement. Numerous small

lot orders are being placed in this district, but the aggregate is not large. Furnace companies are shipping on new orders as quickly as purchasers will receive the iron. Quotations still range between $26.50 and $27.50 for No. 2 foundry (1.75 to 2.25 silicon). The Alabama Co., with one furnace in operation, shipped out all the iron it produced during February, and expects to increase shipments this month. The Republic Iron & Steel Co., and Sloss-Sheffield Steel & Iron Co., have each a blast furnace in operation, and both have a considerable tonnage of iron on the yards. The Woodward Iron Co., all of whose furnaces have been closed down, is making repairs.

Ore Prices

Will Be Lower for 1921—Operators Undecided on Exact Figure

Cleveland, March 8.—Iron mine operators now generally agree that prices of ore for delivery in 1921 will be reduced, but the exact amount still is to be determined. No demand exists at present, and several preliminary matters must be disposed of before prices are announced. It appears that vessel rates on iron ore will be reduced, and the general impression is that this will amount to 20 to 25 per cent. However, the vessel operators have not come to any conclusion and the new rates are purely a matter of speculation.

Mine operators are preparing to take vigorous action to have the railroad rates reduced. The increases made this year by the roads in Michigan, in the face of the petition of the ore producers for a reduction, are likely to influence prices. The operators plan to petition for reparation. They will seek a refund on all charges paid in Michigan this year in excess of the rates prevailing at the time of the filing of their petition for a reduction. The Minnesota house will hold a public hearing on the tonnage tax bill, approved by committee on March 10.

It is expected that some iron ore will be moving on old contracts from the Lake Superior district by April 15, but the buying movement for 1921 it is thought will not begin before May.

Some of the furnaces are inquiring as to whether price reductions this year will apply on tonnages contracted for last year but undelivered. Several operators are considering the matter, but say there is no precedent for such action. Others state the reductions will not apply in their particular cases. It is understood that some of the operators at the close of the shipping season last year gave furnaces the option of cancelling tonnages or continuing contracts in effect, applying the price prevailing at time of delivery.

Shipments of iron ore from Lake Erie docks to interior furnaces in February amounted to 523,098 tons as compared with 645,785 in February, 1920. Stocks remaining at Lake Erie ports March 1 amounted to 8,699,284 tons, as compared with 9,015,813 a year previous. Shipments are being made at a slow rate and indicate that more ore will remain on dock April 1, 1921 than on April 1, 1920, when the total was 7,519,575 tons.

Foundries Buying Coke

Spot Demand Features Market, While Furnace Fuel Fails to Move at $4 to $4.75—Wage Adjustments Begun

Pittsburgh, March 8.—With blast furnace operations down to a minimum, sales of beehive coke for foundry use continue to be the feature of the market. With one large coke oven operator, this foundry demand is sufficiently heavy to bring its shipment up to 75 per cent of maximum. Foundries are closing on spot requirements involving 100 to 600 tons and the market appears to be quotable at $5 to $6 ovens. Foundries have no contracts on which to depend. Coke oven operators are holding to higher prices, but these are nominal in the absence of sales. Inquiries for Connellsville coke are coming from a distance. A chicago distributor of by-product coke sends an inquiry for as much foundry coke as can be furnished weekly for an indefinite period. No contracting is being done for future requirements. Several jobbers in the Pittsburgh territory report that inquiries and orders are increasing for foundry coke with a practically total absence of furnace coke demand. One sale of furnace coke however, recently made, involves 1000 tons and the price was $4.75, ovens. Furnace coke is considered quotable at $4 to $4.75, ovens, with some sales being made at $4.25 and $4.50, the lower level being exceptional. Some heating coke recently was sold at $4 and a chemical interest is understood to have purchased 50 carloads, two cars to be delivered daily during March at $4. Ten cars went to a Pittsburgh district coke oven operator. It is understood that some minor wage adjustment has been made among the nonunion coke oven operators in the lower Connellsville district. According to the *Connellsville Courier*, production for the week ended Feb. 26, was 120,820 tons as compared with 135,320 tons in the preceding week.

Boston Prices Uncertain

Boston, March 8.—Foundry coke demand in New England is so light and the price policies of the by-product producers so uncertain that it is difficult to quote anything but a nominal market. Sales of beehive coke during the week have been made as low as $5.50 and as high as $6.50, Connellsville ovens. The by-product producers still express willingness to meet outside competition. The New England Coal & Coke Co., is understood to have met a price of $11.60, delivered, in a recent transaction. The nominal price of both by-product producers in this district, however, is $12.85 delivered. A slightly better sentiment in the coke market is reported by several dealers. Two spot orders placed during the week show an improvement over the trading of a week ago. One of these was for 250 tons and one for 400 tons, both for Massachusetts consumers.

Market Now $5.50 to $6.50

New York, March 8.—Demand for coke continues small. Prices, on business done show practically no change, except that a little more of the tonnage now is bringing $5.50, Connellsville, whereas it was difficult to obtain standard brands at less than $6 a week ago. The market now may be quoted at $5.50 to $6.50, Connellsville. The Seaboard By-Product Coke Co., continues to quote $6.50, Connellsville, on by-product foundry coke shipped during March. This is the same as the February price.

Firmer Tone Noted

Cincinnati, March 8.—Evidences of a scarcity of coke, particularly foundry fuel, are appearing and there is a slightly firmer tendency. The market presents a better appearance than for some time. There is no apparent disposition on the part of consumers to make commitments, although new inquiries have appeared. Sellers express the belief that a slightly higher level is being held off only because of free offering of loaded coke. Connellsville foundry coke in open cars has been offered here at $5.50, and box car loading is obtainable at $6.25 to $7. In recent reported sales, Wise county foundry has been shaded from current schedules. Outside of Cincinnati, where foundry work continues tied up by the molders' strike, there is promise of early resumption.

Buy For Prompt Delivery

St. Louis, March 7.—Some sales of coke for immediate shipment are reported, but there is no contracting for the future. Selling agencies report it impossible to interest customers in supplies for needs further ahead than 60 days. Present low quotations on Connellsville coke, it is thought, will result in the shipment of larger quantities to this district, but thus far this has not had any effect on the price of by-product coke. The St. Louis Coke & Chemical Co. has entered the competitive field, and is shipping regularly. Southern ovens, which prior to the war, did an extensive business in this district, are having difficulty in re-establishing trade. Prices generally are steady. One interest offered Connellsville 72-hour foundry coke at $5.75, ovens, but the accepted range is from $6 to $7.75, according to quality. New River brands are relatively firm at about $10.

Continue to Curtail

Birmingham, Ala., March 7.—Further weakness is noted in the coke market in the South, production being reduced as demand lags. The independent cokemakers, the principal operators of beehive ovens, have little business on hand. Two of the by-product plants of the district are operated just sufficiently to keep the plants hot. Only one or two of the other by-product plants, including that of the Tennessee Coal, Iron & Railroad Co., are being operated on full time. Quotations show no changes. The coal market is dull. Many mines have closed down.

Bar Buying at Low Point

Demand Also Lacking Though Released Tonnages of Cold-Finished and Forging Bars Indicate Automotive Industry Activity—Prices Ignored

Chicago, March 8.—Soft steel bars are in slow demand and practically no new business is being booked. The industrial board price of 2.73c, Chicago mill, is being maintained by the Illinois Steel Co. and some business is moving at that figure, although bars are available from independent sources at 2.38c, Chicago mill, and at various prices between. Consumers of bars apparently have sufficient tonnage in stock or on contract. Large programs of state road building in the west have caused considerable demand for soft steel reinforcing bars

Makers of bar iron are quoting 2.68c, Chicago mill, and at least one producer is willing to name 2.65c, mill or lower. Occasional small tonnages are being taken, but they are not sufficient to arouse interest. Hard steel bars rerolled from rails are not in demand and all mills producing them are idle.

Price Is Unchanged

New York, March 8.—In the absence of any real business, the eastern bar iron market remains unchanged at 2.35c, Pittsburgh. A sizable tonnage might bring out concessions, but there is no inquiry of this character in sight, and sellers are waiting, believing further reductions would fail to stimulate trading. Operations are at approximately 15 to 20 per cent of mill capacity.

Prices Not Tested

Philadelphia, March 8.—Steel bar business is small and does not afford a test of prices. The current price level on substantial tonnages may be quoted at 2.00c to 2.10c base Pittsburgh. Rivets now are quoted lower at 3.95c base Pittsburgh for boiler quality and 3.85c for structural. Shading in bolts seems restricted to bolts with cold punched nuts. Such shading is not of great extent.

Cold-Finished Releases Received

Pittsburgh, March 8.—Releases on suspended contracts for cold-finished steel bars in small tonnages received from several automobile companies gives a better tone to that market than has been apparent in recent weeks. These come from the Ford Motor Co., the Reo Motor Co., the Studebaker Corp., and others. New orders are not numerous nor do they involve large tonnages, but the inquiry rate is improving. This product is considered quotable at 3.25c to 3.60c, base, Pittsburgh, although 3.00c recently was quoted on a carload in an exceptional case. In same cases, jobbers have been setting aside the usual 25 cent differential for material from warehouses and have been quoting mill prices. Plant operations probably would average 40 per cent and while some are stocking material, most producers are shipping their entire output. With a few makers, requests for shafting are more numerous than they are for screw stock.

Automobile Tonnage Is Better

Cleveland, March 8.—Some increase in operation among automobile parts and forging manufactures who cater to the automotive trade, is shown by the greater tonnages of bars being ordered against contracts with the mills. These manufacturers have received some releases from automobile builders for springs, rims etc. Some new business is appearing, including one inquiry for 250 tons of spring steel and an order for 400 tons of rim stock put out this week. Not much new business in soft steel bars is moving, the price on which seems to be well established around 2.00c Pittsburgh on attractive lots. Reinforcing bars are quoted at 2.00c to 2.10c mill.

Small Tonnages Being Bought

Pittsburgh, March 8.—Imperative needs of merchant steel bars only are being purchased. Various low prices such as 1.90c, 1.95c and 2.00c are being named and this has served to create an uncertainty in the minds of prospective customers. A few small inquiries involving 100 tons each are current and a local user recently purchased 100 tons at 2.10c. The Carnegie Steel Co. is not booking much new business at its 2.35c price but from time to time receives specifications against old orders as well as releases on suspended tonnages.

On refined iron bars the tonnage which is changing hands is negligible. Other makers are not closing any sales and report only small inquiries. One of these is quoting a price 50 cents per 100 pounds lower than prevailing two weeks ago but this has not served to develop any new business.

Rivet Prices Reduced

Cleveland, March 8.—Producers of rivets in this territory have made another official reduction of $3 per ton in prices effective March 1, which practically meets the shading that recently has been current in the product. The new schedule of prices is 3.75c Pittsburgh for structural, 3.85c for boiler and 60, 10 and 5 off for small rivets. Rivet manufacturers in this district are doing better and are ordering steel in larger amount from the mills.

Demand Becomes Active

Boston, March 8.—The demand for bolts and nuts in New England which has been dull and without change for many weeks has suddenly developed activity and orders for the past week have probably doubled those of any week during February. Part of this business has been due to railroad purchases, but the bulk of it is the result of miscellaneous demand from dealers which apparently indicates some industrial revival.

Nut-Bolt Dearth Continues

Pittsburgh, March 8.—Orders for nuts, bolts and rivets are not increasing and some makers report present shipments could be made by parcel post. Inquiries are fairly numerous but considerable reluctance to close is noted. No official reductions in prices are announced although concessions are being offered, in some cases an extra 10 per cent being quoted. Manufacturers are inclined to demand evidence that a lower price has been received before they quote lower levels, however. Some plants are operating practically full three days a week, while others are able to maintain a slightly higher average. Some rivet business is coming along from jobbers who are piecing out their stocks. Lower prices likewise have been named in connection with rivets, 3.90c and 4.00c being the nominal markets on structural and boiler rivets, with as low as 3.70c quoted on the former.

Bolt Competition Keen

Chicago, March 8.—With unusually slow demand for bolts and nuts, competition for such business as offers is unusually keen, and the prevailing schedule is being shaded by five to eight points. Not sufficient business offers to test the market thoroughly and until a better insight is obtained, the present schedule of discounts probably will stand. Manufacturers are practically uninterested in further supplies of this material.

Quiet Market

In Practically All Alloys—Prices Not Sufficiently Attractive

Pittsburgh, March 8.—All ferroalloys remain quiet and current inquiries involve little more than a carload and often less than carloads. Sellers are confronted by additional contemplated shutdowns and attractive prices do not inspire interest. A local foundry recently had opportunity to buy a carload of English ferromanganese at resale at $90, delivered, but did not because it will shut down March 15. The American product is quotable at $90 to $95, delivered, with some producers endeavoring to obtain $105, freight allowed. The lowest price on the imported material is $100, c. i. f., Atlantic ports, although this is considered nominal.

The Brier-Hill Steel Co. recently purchased a carload of 50 per cent ferrosilicon but now states it is not negotiating on its year's requirements. Furnaces are quoting $92, $93 and $95, delivered, although sizable quantities still are available at resale for considerably below those figures.

Domestic 4 to 6 per cent carbon ferrochrome in Pittsburgh warehouses for the past 18 months is being offered at 14 and 15 cents. A Pittsburgh user recently purchased a carload at 14 cents. Less than carload inquiries are current for carbon-free ferrochrome and ferrotungsten.

Since consumers of spiegeleisen have large stocks they are indifferent to advances by sellers even though attractive prices are named. No inquiries are current and no sales are reported.

Prices Are Unchanged

New York, March 8.—Little new business is reported in ferroalloys. Alloy steel makers still are buying cautiously and only for immediate requirements. In many cases they still have ample stocks. Prices show no change. Some tungsten metal powder has been sold at 60 cents per pound while ferrotungsten

still is quoted at 45 cents to 50 cents per pound contained. Ferrosilicon sellers still are quoting $92 to $95, delivered, and are taking some business at these prices. The Bethlehem Steel Co. paid something over $90 for 200 tons.

Ferrovanadium is unchanged at $5 to $7 per pound contained and ferrochrome continues at 16 cents per pound contained for alloy containing 6 to 8 per cent carbon. Ore prices also are unchanged, except for some firmness in the price of higher grade tungsten concentrates.

Market Is Quiet

Philadelphia, March 8.—The ferromanganese market is quiet. The last first hand domestic prices were $90 to $95, delivered, and some English recently offered was equivalent. A resale was made last week at $81 delivered.

Malleable Castings Output Is Declining

Statistics compiled from reports by the leading producers of malleable iron castings indicate that plant operations in January were equal to only 37 per cent of capacity as contrasted with 51 per cent in the preceding month. The percentage for February, it is said, will be less than in January. Eastern malleable plants are the most fortunate in that they supply a more diversified line of castings. Some eastern companies have as many as 1220 customers on their books, while the average western malleable plant has less than 100 and some as few as 20 who regularly buy their products. Price reductions have been made where business has been offered, but there is no indication that they have had any influence on the buying of castings. Agricultural implement business is extremely slack for this period.

Hoops and Bands Dull

Pittsburgh, March 8.—Makers of hoops and bands report the market probably never was so quiet as at present. An absolute dearth of orders prevails and while a few tentative inquiries are current, some for hoops from the cooperage interests, these do not rapidly turn into orders and are considered as feelers. With bars selling at 2.00c, base, Pittsburgh, the usual 70-cent differential gives the low price of 2.70c, representing a concession of $7 per ton, although 2.80c at present seems to be the usual quotation, while a number of independent companies are holding to the nominal 3.05c level in the absence of going business. These have not quoted the lower figures but on tonnage concede they might do so. The Carnegie Steel Co.'s price is 3.05c, base, Pittsburgh.

Seek Tariff on Ore

Duluth, March 8.—Operators of mines on the Cuyuna range have forwarded resolutions to the house ways and means committee at Washington urging an adequate duty on manganiferous ores containing 5 per cent or more of manganese. It was claimed by operators at a meeting held here that protection is necessary if operations of Cuyuna range manganiferous mines are to be resumed.

Plates Await Price Tests

As Few Tonnages Are Being Placed—2400 Tons Sale However Made Under 2.00c and 1.95c Reported Quoted

Philadelphia, March 8.—The plate market in this district has had no real price test the past week. Most of the current business has been bringing 2.20c base Pittsburgh or higher. While it is known that 2.00c Pittsburgh could be done on large tonnoges nothing has been placed in this district at that figure. Consumers again report having received assurances that the mills would accept large tonnages from them at 1.90c Pittsburgh but this price is not mentioned in connection with any definite tonnage and it is not a market factor yet. The Midvale Steel & Ordnance Co. has been awarded 350 tons of plates for the navy department at 2.35c base Pittsburgh. The navy department will open bids March 22 on 280 tons. The Midvale Steel & Ordnance Co. booked new business the past week at the rate of slightly more than 50 per cent of capacity of its Johnstown plant.

Market Is Weaker

Pittsburgh, March 8.—Concessions of $14 per ton recently have been made on plates without much ordering being done. This makes the price 1.95c as compared with the 2.65c, base, Pittsburgh price, named by the Carnegie Steel Co. The latter company reports practically no new business but claims to be receiving specifications against old orders as well as releases from day to day. The Pittsburgh-Des Moines Steel Co. probably will not purchase the 2400 to 2500 tons of plates required for the 12 tanks for the United States shipping board since it is understood to have several thousand tons of plates in stock. The same condition prevails in connection with the American Car & Foundry Co., which recently received an order for cars from the Louisville & Nashville railroad requiring something like 9000 tons of plates. It is stated that most of these will come out of its own large plate stock.

2400 Tons Placed Low

Cleveland, March 8.—Much discussion has been caused in this market by the placing with an eastern producer of 2400 tons of plates by a Sharon, Pa., tank manufacturer. While the exact price is not definitely established, it is understood that 2.00c Pittsburgh was shaded. Sharp competition for the business was shown. Plate lots of ordinary size are being placed at 2.15c to 2.25c Pittsburgh.

Oil Tanks Take Tonnage

Chicago, March 8.—Construction of storage tanks for oil companies is furnishing more plate business than any other line. With oil at its present low price, efforts are being made to store as much as possible. Considerable tonnages of plates are required for tanks. Other plate users require less than usual. The leading interest maintains its quotation of 3.03c, Chicago mill, while independent mills will furnish plates at 2.38c, Chicago.

The Baldwin Chain & Mfg. Co., Worcester, Mass., at its annual meeting elected the following officers: President, George T. Dewey; vice presidents, William F. Cole and J. H. Kendall; treasurer, William H. Gates, who also are the directors.

Canning Outlook

Cheers Tin Plate Makers Who Get Sizable Releases for Material

Pittsburgh, March 8.—Tin plate mill operators are more encouraged over the outlook, since they continue to receive fairly sizable specifications for March and April delivery. In fact, the American Sheet & Tin Plate Co. reports specifications received last week were sufficient to enable it to operate at 100 per cent capacity for at least 10 days, should it desire so to do. At present its operations probably do not much exceed 60 per cent. Some of these orders came from can makers and included a particularly sizable order from the American Can Co. The majority of the orders call for shipment by April 1 or earlier if possible. The condensed milk industry is understood to be operating approximately 100 per cent and is a correspondingly heavy consumer of tin plate. Some of the packers are getting ready for the May and June pea crop. One of the independent companies reports one of the releases it received involved seven carloads and this is more or less typical. The market holds firm at $7 per base box of 100 pounds, although the $6.75 price is suggested at times and one consumer who uses approximately 250,000 base boxes annually recently submitted an offer of $6.50 on 50,000 base boxes, but so far as reported the business has not been accepted. Oil interests are loaded up heavily and are not expected to buy until the second half. In fact, one large interest which ships much case oil to South America reports it will not need a pound of tin plate until October.

To Reject Steel Bids

Washington, March 8.—All bids received by the shipping board for the sale of the 110,000 tons of surplus ship steel at the Hog Island shipyard will be rejected, it is understood, as being too low. Such a recommendation probably will be made this week by the division of supply and sales, but action is not likely to be taken on this recommendation until the new shipping board is seated. The 110,000 tons are all fabricated, and a part is also assembled. The high bid was $9.265 a net ton, by the Merchant Metals Corp., of New York. As the board figures it will cost $2 a ton to load the steel, the high bid thus is the equivalent of $7.265 a ton, against a present market price of $14 to $14.50 for heavy melting steel scrap. The Midvale Steel & Ordnance Co., Philadelphia, put in a bid of $8.50.

Scrap Softens Generally

Consumers Remain Out of Market, Accumulations Pile Steadily and Prices Everywhere Slump—Speculators Are Hit and Offerings Are Unsold

FOR COMPLETE SCRAP PRICES SEE PAGE 730

Chicago, March 8.—Consumers are not figuring in the market for scrap at present, the only activity now being tonnages traded between dealers and this is in reduced volume since practically all contracts will be covered in full before the end of March. As no contracting is being done for future delivery, the market then will be on a spot basis. In practically every department consumers are running at so low a rate they are taking nothing except occasional carload lots. Railroads are offering fairly large lots on which they are receiving extremely low bids, but their present need of money is causing them to accept these prices. The scrap is going into yards and dealers figure they can obtain a profit by holding it. Some conservative dealers believe the bottom of the market has not yet been reached and are not now taking on any scrap. Among tonnages available from the railroads are Chicago & Northwestern, 5000 tons, including 1000 tons of No. 1 wrought; the Illinois Central 2200 tons, including 1000 tons of No. 1 steel rail; Pennsylvania southwest 5000 tons and Pennsylvania northwest 1500 tons; Santa Fe 3200 tons; the Pullman Co. 2500 tons; the Wabash 800 tons; the Chicago, St. Paul, Minneapolis & Omaha 500 tons; and the Soo Line 250 tons.

Prices Still Decline

Boston, March 8.—Accumulations of scrap are on the increase here and with the demand still low, this is causing further price reductions. Transactions have been so few during the past two weeks that prices on many grades are nominal. All cast grades have dropped from $1 to $1.50, however, and it is more than likely any grade in a small lot could be bought today at a lower price than a week ago. Several recent large car barn fires are partly responsible for the increase in scrap accumulation, but some of the scrap coming on the market is directly traceable to increased plant operations. Eastern Pennsylvania mills continue to take in a moderate amount of scrap and while offers from that district are not attractive, there are cases where forced sales have been made. One car of No. 1 machinery scrap was sold recently at $20 delivered, to consumer, but the market generally is about $3 above this price. Stove manufacturers are taking more interest in scrap and one has an inquiry for several hundred tons.

Collection at Low Point

New York, March 8.—Dullness still characterizes the local scrap market. Dealers assert that little demand prevails, and in the absence of any real business, prices are nominally unchanged. While supplies at the yards are in good volume, the collection of scrap for many weeks past has been at the lowest point in years, and until there is some incentive in the way of consuming demand, this condition is likely to continue. This appears especially true in view of the fact that producers of scrap are operating at such greatly reduced schedules that the accumulation has not been sufficient at their plants to force them to sell.

Buying Aggregate Small

Philadelphia, March 8.—Buying of scrap during the past week was slightly improved, but was entirely of a hand-to-mouth character. The total was comparatively small; in fact, production of scrap continues greater than consumption despite the belief of dealers a few weeks ago that prices were at the bottom. The list generally has sagged off materially.

Dealers Cease To Buy

Pittsburgh, March 8.—Except in exceptional cases, dealers have ceased their efforts to purchase scrap for their yards. This removes practically all trading in this district and a stagnant condition prevails. The American Manganese Mfg. Co., Dunbar, Pa., recently purchased a few hundred tons of borings and turnings and another user purchased two carloads of iron car wheels. This latter grade has been reduced from $21 to $22, to $20 to $21 and other grades are slightly weaker including machine shop turnings, No. 1 cupola cast, heavy breakable cast and stove plate, each of which have been reduced $1; cast iron borings have been reduced from $11.50 to $11 and $12 and shovel turnings from $12 and $12.50, to $11 and $12. All prices, however, are practically nominal. Bidding is fairly active on the railroad lists extant, and bids are being closed today on the Pennsylvania, eastern region, list involving 17,840 tons. Any scrap which is being produced in automobile plants because of increased activity has not put in an appearance in this market. Dealers are closely watching the automotive situation.

Softening Hits Speculators

Buffalo, March 8.—The speculators who purchased scrap freely a short time ago are faced with loss, due to the further weakening of the market and a new bottom of prices. No large tonnages can be obtained at the present nominal price schedule due to the fact dealers who bought material at the high prices are loath to let go of it. A local mill is picking up a few choice shipments of No. 1 heavy melting steel at $13.50. Dealers are not anxious to sell, but some tonnages are available. The market for steel axles is very weak.

Lower Prices Indicated

Cleveland, March 8.—Dealers in iron and steel scrap declare local trade conditions are unprecedented. Buying is at a standstill and the only movement of material is on old contracts and in limited tonnage. Consumers insist on highest quality with the result that rejections are not infrequent. Prices remain unchanged but indications point to lower quotations.

Market Better at Detroit

Detroit, March 8.—Buying of scrap was slightly better in Detroit last week but the tonnages involved were not of size. As a result, heavy melting steel went up slightly and iron scrap was $1 higher. Otherwise prices are practically unchanged. Consumers in general are not buying freely.

All Grades Quoted Lower

Cincinnati, March 8.—Scrap prices have declined again in this market, the schedule ranging approximately $1 lower throughout the list than previously quoted. Little buying is being done and with the exception of a limited number of inquiries there is nothing to indicate an early sizable demand. While distributors are overloaded they declare the bottom has been reached and a reaction is inevitable with a revival of buying.

Consumers Not Operating

St. Louis, March 7.—So far as consumers are concerned, there is virtually no market for scrap iron and steel. Business is confined to small trades between dealers, who have made numerous downward revisions in their price lists. In some instances prices are less than before the war. Speculators, however, are not disposed to purchase because of the poor consumptive demand. Plant operation in the district is at a small fraction of capacity. Most of the large mills and foundries are completely down, or running on reduced schedules. A canvass of industries using scrap develops the information that in but two instances are there definite plans for reopening. There are no inquiries before scrap dealers from outside points, and very little material is being shipped out. The only grade involved is malleable. Railroad offerings include 900 tons by the Wabash; 750 tons by the Mobile & Ohio; 1125 tons by the Missouri, Kansas & Texas, and about 700 tons by the Cotton Belt.

Market Dragging Along

Birmingham, Ala., March 7.—The southern scrap iron and steel market still is inactive. A little encouragement is aroused by the statement that the rolling mill at East Birmingham has been getting in orders for bar iron. The plant operates almost entirely on old material. Consumers of heavy melting steel are out of the market, while other melters are buying sparingly. Cast iron pipe makers are not buying much material.

Sales Slow

For Cast Pipe—Prices, Being Shaded, Mill Pipe Orders Less

Chicago, March 8.—While additional inquiry for cast iron pipe continues to come out, sales are slow. In fact bids usually are held under advisement for a considerable time before awards are made. While quotations have not been changed from the basis of $55,

Birmingham, which has prevailed for some time, makers are watching the pig iron situation closely and when the market has receded sufficiently doubtless will put a cut into effect, as they feel satisfied general buying will not be done until quotations are materially lower. Shading of 25 cents to 50 cents per ton is being done and in some cases as much as 75 cents. The Lynchburg Foundry Co. was low bidder on 1000 tons opened March 2 at Detroit. The United States Cast Iron Pipe & Foundry Co. was low on a tonnage at Spring Wells, Mich. Figures will be taken at Moberly, Mo., March 10 on 300 tons, at Springfield, Ill., March 14 on 300 tons, at Fort Wayne, Ind., March 14 on 250 tons, at Evanston, Wyo., March 15 on 200 tons, at Columbus, March 16 on 350 tons, at Milwaukee, March 21 on 1450 tons, and at Topeka, Kans., March 28 on 150 tons.

Buying Still Inactive

New York, March 8.—The Warren Foundry & Machine Co. is low bidder on 600 tons of cast iron pipe for Syracuse, N. Y. Whether the bid is to be accepted or rejected may be decided soon. Recent awards include 500 tons for New York city, placed with the United States Cast Iron Pipe & Foundry Co.; 200 tons for Holyoke, Mass., with the Donaldson Iron Co.; and 500 tons for Trenton, N. J., with R. D. Wood & Co. William F. Norton, recently awarded the general contract for furnishing and installing 500 tons for New York, has not as yet purchased the pipe. Private demand is somewhat better, although buying is still far from active.

Orders at Low Rate

Philadelphia, March 8.—The Reading Iron Co's tube works at the present time are operating at slightly less than 50 per cent of capacity, and the skelp and puddle mills at not more than 25 per cent. New orders are being received at a rate lower than at any time in the history of the company, and a further curtailment of operations will be necessary next week. Both of the company's furnaces are idle.

Fail To Stimulate Buying

Pittsburgh, March 8.—Recent reductions by the makers of wrought iron pipe have not served to stimulate buying and operations are at an increasingly lower rate. Operations of the iron pipe mills have been curtailed somewhat.

Among the makers of steel pipe contrasting conditions prevail. One large independent company here continues able to operate practically 100 per cent as does the National Tube Co., both receiving fairly numerous and sizable inquiries as well as spasmodic orders. Other companies, however, are more or less discouraged over the outlook and report the condition practically stagnant with no sign of orders or specifications against suspended tonnages which have been on the books for several months. One of the large steel companies here reports that many inquiries are out for line pipe and as soon as the oil business becomes more stabilized some heavy orders will be placed.

Revised bids on cast iron pipe for the city of Pittsburgh recently were received and an order was placed at $68 instead of $79, the original price quoted.

Sheet Releases Increase

Demand from Automobile Makers Allows of Increased Operations at Pittsburgh—Inland Mills Down—More Price Cutting Reported

Pittsburgh, March 8.—More releases on sheet tonnages are being received and in some cases have brought about increased sheet mill operations among independents. These include the Allegheny Steel Co., which put on four mills in department No. 2 this week, having had department No. 1 running last week; and the West Penn Steel Co., Brackenridge, Pa., which put on sheet mills Nos. 2 to 8, inclusive, Monday morning. It is doubted, however, if the average operations of the independent companies would exceed 40 per cent. The American Sheet & Tin Plate Co., which is receiving some fairly heavy sheet release specifications from automobile manufacturers, is understood to be operating a little below 60 per cent. Various cut prices are heard from time to time, under those named by the American company, namely 4.35c, 5.70c and 3.55c on black, galvanized and blue annealed, respectively. The lowest reported so far are 3.85c on black, 5.00c on galvanized and 3.00c on blue annealed, representing concessions of $10, $14 and $11 per ton, respectively, and it is understood that those levels would apply to attractive tonnages. One user recently offered an order for 1000 tons of galvanized sheets at 5.00c, however, but this was refused by the mill.

Market Still Untested

Philadelphia, March 8.—Sheet demand is small, and does not afford a real test of the market. Blue annealed has been sold at 3.10c to 3.30c, base, Pittsburgh, and as low as 4.10c, base, Pittsburgh. Sales of galvanized have been made as low as 5.00c to 5.15c. Consumers are showing interest only in prompt requirements.

Few Sales In Valley

Youngstown, O., March 8.—A lack of interest in the sheet market here is evidenced by the small tonnage placed recently and the small volume of current inquiries. No sales are reported in this district to substantiate prices lower than 4.00c for black, 3.30c for blue annealed and 5.00c for galvanized. It is indicated, however, that a maker outside this district recently waived extras for size on several hundred tons of black, the price being 3.85c, mill. Approximately 300 tons of blue annealed was placed last week with a valley maker at 3.30c, mill. The price of 5.25c, which many makers now are asking for corrugated galvanized in carload lots, was shaded considerably by a producer close to this district who is offering bundled lots to the tinning trade at 5.20c, mill. Additional tonnage of automobile sheets held up a few weeks ago has been released. Reports from sheet consuming interests in the Detroit district indicates a more active condition than has prevailed for many weeks.

Demand Light, Mills Shut

Chicago, March 8.—Lack of business has caused the Inland Steel Co., to let its entire sheet mill remain idle this week, after tapering off from full operation to practically half, last week. New business is not being booked in sufficient quantity to insure continuous operations at 50 per cent. While some shading is being done, prices are not sharply below the prevailing schedule, the lowest figures made in any competition being 5.00c, Pittsburgh on No. 28 gage galvanized; 4.00c, Pittsburgh, on No. 28 gage black, and 3.00c, Pittsburgh, on No. 10 gage blue annealed.

Strip Orders Increasing

Pittsburgh, March 8.—Makers of hot and cold-rolled strip steel see a trend toward improvement. Contributing to this feeling is the increasing number of releases from automobile manufacturers, and while no large tonnages are involved so far, lots of 50 to 200 tons, are asked for from time to time. More of these are expected soon, since the automotive plants are known to be checking up their stocks preparatory to ordering more steel forwarded. A few brand new orders are being received, some from Canadian consumers, although the rate of exchange is a deterrent to such business. One maker reports the receipt of about a dozen Canadian inquiries recently as well as one from New York for 200 or 250 tons. Concessions are being named and while 3.05c and 6.00c appear to be the general quotations with some makers holding to 3.30c and 6.25c on hot and cold-rolled, respectively, 2.85c has been heard on the hot and 5.65c on the cold-rolled product. The latter represents a concession of $12 per ton under the industrial board price. Plant operations still are somewhat curtailed, one maker operating two hot mills alternately and the cold mills only as required.

Warehouse Prices Soft

New York, March 8.—Galvanized sheets, No. 28 gage, are being offered by a local warehouse interest at 6.50c, which is a small concession under the recent market. Aside from this no change has been noted and the situation generally is without special feature. Demand continues to be centered principally on reinforcing bars, indicating a tendency to build, but there is no great amount of buying even of this material.

Prices Are Soft

Cleveland, March 8.—Prices on iron and steel material out of warehouse are soft. While jobbers in the main are quoting their regular prices, however, it is understood concessions can be easily obtained. One dealer, who is quoting 6.50c on galvanized sheets, reports it is possible to get the same material at 6.00c. Demand continues slack, although a jobber in iron and steel bars reports a small increase in demand especially in concrete reinforcing steel.

Demand Lacking in Shapes

Stagnation Continues in Building Work Although in Chicago Territory Activity Increases—Sizable Jobs Indicate Competition

Chicago, March 8.—Although it is not reflected strongly in actual contracts, the demand for structural shapes and fabricated material has been somewhat better the past week. It does not appear certan whether this is an actual quickening of the market or simply a coincidence of a number of small needs. It has been especially noted that railroads are taking fabricated parts for small bridge work, and a number of turntables. More definite projects have been closed in the past week than any recent weeks, but all are for moderate tonnages. A project coming up March 15 involves 7000 tons for the United States mail terminal in connection with the union station project in Chicago. It is expected this will bring out keen competition. Deliveries will be required at the rate of about 2000 tons a month. While the Illinois Steel Co. maintains its quotation on plain material at 2.83c, Chicago, it may be obtained from independent sources at 2.48c, Chicago, or possibly a shade under.

Price Range Continues

New York, March 8.—Independent shape prices continue to range from 2.10c to 2.25c, Pittsburgh. Actual buying is still being restricted principally to small tonnages, which, in comparison with a month ago, are fairly numerous. Inquiry also is confined, with few exceptions, to small lots.

New Business at Minimum

Pittsburgh, March 8.—Emergency shape tonnages only are being purchased despite the lower prices available and these orders necessarily are small. Scattering inquiries are being received in sufficient number, however, to keep the estimating forces busy but the several large projects before makers for several weeks still are held in abeyance. The McClintic-Marshall Co. reports the most inactive month of February in 17 years and other fabricators make similar comments. The Carnegie Steel Co. continues to name the 2.45c base Pittsburgh price but concessions of $7 per ton under that are numerous and the impression prevails that a sizable tonnage could be placed at 2.00c, or possibly 1.95c. The latter price now is being quoted on plates, and some mills are not inclined to differentiate at the present time between the two products.

Eastern Business Light

Philadelphia, March 8.—New shape business is small. Current orders in this district are bringing 2.15c to 2.45c, base, Pittsburgh, but business of a character to test the market is lacking. In some other districts where the shape demand is more active and competition has been stimulated, lower prices have been done.

Await Outcome of Bidding

Cleveland, March 8.—Fabricators in this district are awaiting results of the opening of bids yesterday in New York for the 2500 tons structural steel required for the Wade Park Manor, a family hotel, Cleveland. It is said that practically all of the fabricators figured the work and some lively competition was predicted. Decision to build the Commodore Perry hotel, Akron, of concrete has reduced the structural requirements for this job to approximately 500 tons of steel. About 450 tons of steel piling for the Federal Reserve bank building this city is up for bids.

CONTRACTS AWARDED

Seven oil tanks at Destrehan, La., 857 tons, to Graver Corp.

Beams in vault retaining wall of Federal Reserve bank at Kansas City, Mo., 414 tons, to Fort Pitt Bridge Co.

Two high schools at Cedar Rapids, Iowa, 335 tons, to Crown Iron Works.

Theater and store building for Vendome Theater Co., Evansville, Ind., 388 tons, to independent shop.

Steel truss span for bridge over Clackamas river at Park place, Clackamas county, Oreg., 167 tons, to Pacific Iron Works, Portland, Oreg.

Factory for Croyer Motor Co., Stockton, Cal., 110 tons; to Austin Co.

Two highway bridges, Catskill, N. Y., 200 tons to the McClintic-Marshall Co.

Highway bridge over Santee river, South Carolina, 200 tons; to southern independent.

Highway bridge, Savannah river, 550 tons; to Virginia Bridge & Iron Co.

Municipal pier, Camden, N. J., 350 tons, to independent shop.

CONTRACTS PENDING

United States mail terminal building, Van Buren, Harrison and Canal streets, Chicago, 7000 tons, bids to be opened March 15 by Graham, Anderson, Probst & White, Chicago, architects.

Highway bridge, Lebanan, N. H., 500 tons.

Warehouse, Waterbury, Conn., 250 tons.

School, Newport, Ky., 250 tons.

Baptist church, Fifth avenue, New York City, 500 tons.

Cold storage plant, Detroit, 350 tons.

National City bank, Indianapolis, 1000 tons.

Hotel, Williamsport, Pa., 700 tons.

Reconstruction of Philadelphia & Reading railroad bridges, 300 tons.

Reconstruction of New York Central railroad bridges, 400 tons.

Boiler house, Standard Oil Co., Baltimore, 100 tons.

Federal Reserve Bank building, Cleveland, 450 tons steel sheet piling. Bids being taken.

Hospital for war department, West Point, 200 tons, bids pending.

Municipal housing station, New York City, 400 tons, bids pending.

School, Lynbrook, L. I., 200 tons, bids pending.

School, Ridgefield, N. J., 200 tons, bids pending.

Parochial school, Bayonne, N. J., 200 tons, bids pending.

Concrete Needs Growing

Pittsburgh, March 8.—Interest in reinforcing concrete bars is becoming slightly more pronounced as the open weather continues. More building projects are up for consideration and this brings about the issuance of inquiries. While the larger jobs still are held in abeyance, several smaller ones are current, each involving from a carload to 200 tons. Prices from 1.90c all the way up to 2.35c, base, Pittsburgh, are named, in harmony with prevailing quotations on merchant steel bars, 2.15c being quoted on a recent inquiry for 18 to 20 tons.

Will Require Bars

Cleveland, March 8.—Estimates of the reinforcing bars which will be required for the Commodore Perry hotel, Akron, since it has been decided to build it largely of concrete, vary from 800 to 1200 tons. In addition approximately 500 tons of structural steel may be required. Bids are to be submitted by March 25.

CONTRACTS PENDING

Commodore Perry hotel, Akron; 800 to 1200 tons. Bids being taken.

Rail Output

Reaches Peak in Chicago District—Equipment Buying Slow

Chicago, March 8.—While other departments of the Illinois Steel Co. are operating much below capacity, the rail mill at Gary is turning out rails at an average rate of fully 20,000 tons per week, at times reaching 21,000 tons. With a large tonnage on its books for delivery during this year and with railroads anxious to have shipments made as soon as possible, this mill is being given every advantage to make new records. Practically all railroads with orders are taking rails as fast as they can be shipped and are anxious to have track fastenings delivered with equal rapidity.

Repair Work Starts

Boston, March 8.—At present most of the New England railroads are placing orders for miscellaneous track equipment required in repair work for the balance of the year. The Boston & Maine will open sealed proposals March 14 covering 2500 tons of tie plates and 1500 tons of oil quenched angle bars. The Maine Central is in the market for over $50,000 worth of frogs and switch material and for 1400 tons of tie plates. The Bangor & Aroostook is asking for figures on 150 frog sets.

Scattered Inquiries Received

New York, March 8.—Demand for cars continues to be confined to a few scattered inquiries foremost among which are lists for 30 cane cars for the Honolulu Iron Works, 233 Broadway, and 15 ore cars for the American Smelting & Refining Co.

Outstanding in the locomotive market is an inquiry for 50 for the Santa Fe. A list of 26 locomotives is being issued by the Peking-Suiyuan railroad, China. The Baldwin Locomotive Works has recently taken an order for 30 locomotives for export to that country.

Asks 800 Tons of Light Rails

Pittsburgh, March 8.—Export business in light rails appears to be more sizable than the domestic. One of the largest export inquiries current in recent weeks calls for 800 tons. Several domestic inquiries are for much smaller tonnages. Some of the traction companies already are looking to their spring requirements, both for standard and light rails, while industrial companies are entering the market for limited amounts. The lowest price quoted here on light rails is 2.15c.

Nail Demand

More Active at Lower Level—Wire Inquiries Increase

Pittsburgh, March 8.—Most of the

activity in the wire products market at present is in connection with nails. Makers do not go so far as to state that this buying has been inspired by going to a 3.00c base on nails, but apparently this is true. The Pittsburgh Steel Co., recently went to this level, and it is understood the Youngstown Sheet & Tube Co. will follow, other companies having previously named that base in a quiet way. Some makers report that only an occasional carload is ordered while others report more sizable bookings. So far as reported a 2.75c base on wire has not been named as yet, although the impression prevails in some cases that a 25-cent differential should apply. The usual quotation is 3.00c on wire, but some are holding 3.25c along with the American Steel & Wire Co., whose operations are at a low rate. An occasional order for mixed carloads of nails, bright and galvanized wire and other products comes through. More wire inquiries also are coming out. These occasionally call for 1000 tons and the prospects are bright for a heavy spring trade. One large user, however, promised a maker here an order for 1000 tons of galvanized wire in March but now states the order cannot be placed and has likewise requested that a tonnage, already on the books of the maker, be suspended.

Production is Decreasing

Chicago, March 8.—Although the leading producer of wire and nails is piling considerable stocks to get its warehouse assortments back to normal, it has reduced operations until it is now producing at about 50 per cent of capacity. Some departments are full and far behind on orders, while others have little business. Prompt delivery can be offered on most products. Demand is much below normal. Independent producers are operating only at part of their capacity, and some are shading prices.

Sheet Bars More Active

Several Thousand Tons Sold at $40, Youngstown—Pittsburgh Maker Concedes Freight—Low in East—Foreign Steel Offered

Youngstown, O., March 8.—After many weeks of uncertainty in the semifinished market, inquiries again are beginning to appear. These mostly are for sheet bars and come from eastern consumers. Several thousand tons of open-hearth sheet bars were included in last week's sales of semifinished material. The price was $40, Youngstown, in each instance. This figure now represents the market in this district. No demand exists for slabs or billets which are quotable around $38, mill.

Foreign Billets Offered

New York, March 8.—Foreign billets have been offered in the East at prices which compare favorably with the prices of American steel laid down at consuming points. Open-hearth rerolling slabs have been offered from abroad at prices which figure out to $37 to $38, delivered at eastern Pennsylvania consuming plants. In view of the reduced ocean freight rates now obtainable it is said that possibly lower prices might be obtained on a firm offer. So far the lowest prices at which domestic open-hearth slabs have been offered in the East have been $38 to $40, delivered eastern Pennsylvania.

Concede Freight on Sheet Bars

Pittsburgh, March 8.—Featured occasionally by a sizable inquiry, the semifinished market continues in the quiet state which has prevailed for weeks. The exact market price on sheet bars is difficult to determine, with some makers holding to $42 and others at $40, and some of the latter conceding the freight rate to get the business. A Canton, O., sheetmaker recently was able to purchase 500 tons at $40, delivered. Its original inquiry called for from 500 to 1000 tons and a quotation of $40, Pittsburgh, was rejected. None of the makers represented here has heard anything with reference to the $35 price recently reported named to an Ohio consumer on 2000 tons, but some concede that $38.50 might be done on a sizable tonnage. One valley maker turned down an offer of 1000 tons of sheet bars at $38. A few inquiries involving 500 tons each are current, typifying increased sheet and tin mill operations.

The dearth in rerolling billets continues, although a recent order for 500 tons of forging billets was lost to a Pittsburgh seller who quoted $45, base, Pittsburgh. The price at which the business was taken is not divulged so that the $45 price is nominal. On rerolling billets, the lowest actual quotation here is $38, base, Pittsburgh, for the 4 x 4-inch, and $42 on the smaller billets, but on tonnage business lower prices doubtless could be obtained. Some smaller billets are sought for steering rods.

Wire rods made in Germany and Belgium are offered in Canada at $49, delivered, and while some makers might be willing to meet this competition with a $47, base, Pittsburgh price, the lowest quotation made here on wire rods recently is $52, base, Pittsburgh, as against the Steel corporation's price of $57.

An inquiry for 1000 tons of skelp comes from abroad. Domestic business, however, is at a low ebb, even at 2.35c, 2.45c and 2.55c on grooved, universal and sheared grades, respectively, now available. These represent concessions of $2 per ton under the Carnegie Steel Co., prices.

Eastern Prices Indefinite

Philadelphia, March 8.—The semifinished market here continues indefinite by reason of lack of demand. Rerolling billets can be had at $40, Pittsburgh, and forging billets at $47.50, but these figures are nominal in the absence of demand. Attractive lots probably could be placed at lower prices.

Buys 500 Tons of Sheet Bars

Cleveland, March 8.—Some new business in semifinished material is appearing but it usually is contingent on price concessions and some makers are not disposed to compete for it, especially since the tonnage is not large enough to warrant starting up idle capacity. A Canton, O., mill bought 500 tons of sheet bars at a reported price of $40 delivered. A Kentucky producer is offering bessemer slabs in this territory. Prices are not well defined but are stated to be about $38 to $40 Pittsburgh or Youngstown for sheet bars and slabs, $39 to $40 for large billets and $42 for small billets.

The Collins Machine Co., Haverhill, Mass., has made an assignment for the benefit of its creditors to Edward R. Hale of that city.

The Nonferrous Metals

	‡Copper	Spot Straits New York	†Lead New York basis	Zinc St. Louis basis	Spot† Aluminum	Spot antimony	Nickel shot
March 2	12.30	29.00	4.10	4.75	24.50	5.20	40.00
March 3	12.30	29.00	4.15	4.75	24.00	5.20	40.00
March 4	12.25	28.75	4.10	4.75	24.00	5.20	40.00
March 7	12.25	28.50	4.15	4.75	23.25	5.20	40.00
March 8	12.25	28.00	4.20	4.75	23.25	5.20	40.00

‡Outside market.
†Open market quotation

NEW YORK, March 8.—Business in nonferrous metals has continued to lag, with an easy tendency in prices. Pig lead has been an exception, its recent sharp break in prices to new low levels for the past six years having attracted a considerable amount of consumers' buying. Lead has been a favored metal in that demand for lead products, including paint and lead covered cables has been well maintained.

The other metals have been neglected by consumers and even speculative interest has failed to respond to the lower prices. The conferences in London on the German indemnity have attracted close attention and settlement is hoped for as a constructive market factor.

A sale of 1,000,000 pounds of electrolytic copper was made late last week by one of the outstanding producers at 12.37½c, delivered, which was a new low for the present movement. Large agencies continued to quote 13c, delivered. Casting copper has been offered at 12c, refinery and lake is nominally 13c, delivered.

The zinc market has been dull and weak at 4.75c, East St. Louis, 5.12½c, New York, with not enough business to establish a sound market quotation. An advance of £2 to £2 5s was made in London today on account of the German situation. England gets much zinc from Germany.

Lead prices recovered from the low level of 3.75c New York made the week previous, until on March 7 some business was done at 4.30c, New York, 4c, St. Louis. A good volume of business has been done.

The tin market has been weak, following the abandonment of the Malay government's pegged price for buying tin and quotations have sagged both here and abroad. Spot Straits tin sold down to 28c today, a new low level, influenced by the new low in London.

Export Prices Well Maintained

So Long as Volume of Foreign Inquiries Remains Small, American Producers See No Need of Making Reductions — Little European Steel Finding Way Into United States—Belgian Material Is Offered

NEW YORK, March 8.—Export sales in iron and steel are negligible and the inquiries have been not much better. The belief is entertained generally that Mexico will be the first market to open up and the imminence of that trade is drawing an army of salesmen to that territory. Cuba also is under closer attention, although the interest there still is in the liquidation of stocks and the clearance of old orders through the congested ports. Now that Cuba is settling her difficulties over sugar and beginning to make sales on the current crop, it is felt that a more normal trend of trade will be felt.

But export trade is far from satisfactory. The high cost of labor and transportation, and prevailing exchanges, are effectually blocking all efforts in the direction of South America, and to a hardly lesser degree, of the Far East. Some structural steel orders recently closed for Japan are not looked upon as significant. As for Europe, the difficulty just now is to keep Belgium and Germany from effectively invading the domestic market here. It is reported that Belgian structural material has found its way to Texas. In South America the prospects for export business are next to nothing for the time being, and there can be no hope of improvement until the present heavy stocks now in warehouses there begin to move out.

It has been learned that Belgian plates can be laid down at New York, duty paid, for 3.00c, and that it can sell bars in this market for 2.15c, equivalent to 1.74c, Pittsburgh. There has been but a slight effort on the part of domestic producers to meet these prices. One nearby mill has offered to sell bars for 2.10c, New York, but that price has not been general. Galvanized corrugated sheets, it was said, have been offered upon the basis of 4.80c, Pittsburgh. There was another report current that plates for export have been offered upon the basis of 2.00c, Pittsburgh, and that bars have been offered for 1.95c, Pittsburgh. This report, however, has not been confirmed.

Generally it is insisted that no mill is offering a lower price on exports than on domestic sales. This is the policy being followed by the United States Steel Products Co., and the Consolidated Steel Corp. At the same time these two sales agencies are soliciting business very actively. It is apparent from the volume of inquiries that lower prices would not bring out any appreciable tonnage, and therefore there is no call for lowering prices. Also it must be remembered that bank credits are still based upon old sales made abroad, and any reduction in quotations now probably would jeopardize the drafts based upon the old sales. To refuse quotations, or to repeat the old quotations is considered by the mills as one means of protecting themselves and their clients through their banking credits.

Freight Charges Are Barrier

It was learned last week that England has submitted inquiries for billets, tubes, plates and structural material. The tonnages were not especially large and the houses handling the inquiries are not inclined to give them any special consideration. Under present conditions it is impossible to sell England. Even though an attractive base rate might be named, the freight charges would debar American producers from that market and turn the business to Germany. Today the rail rate charge from the mill to seaboard is proportionately higher than the ocean freight across the Atlantic. Some exporters are inclined to believe that if the rail charges were reasonable they could do a little business even in the present depressed state of world affairs.

While large business is expected to develop in Mexico this has not as yet appeared. The greater part of the business will be for railroad work. Some scattering Mexican orders, however, are appearing. One comparatively small house reports selling several carloads of sheets and pipe to Mexico. The sheets are galvanized and corrugated, required for the erection of buildings and small railway stations. Another house is holding Mexican inquiries for corrugated sheets and steel bars. This material also is desired for construction work.

Some of the engineering houses here are drafting plans for public service utility works in South America. Last week Brazilian agents were in consultation with engineers on such projects. These projects are being held up until properly financed although it seems definitely assured the orders will be placed here.

The Krupps of Germany, it is learned, have been awarded a contract for 10,000 laminated steel car wheels by the Argentine state railway. The price was 40 9/16 Argentine gold pesos (nominally $39.10) for each wheel, delivered. The German corporation agreed to deliver 200 wheels per week beginning in August. Seventeen companies were competing for the contract, there being bidders from the United States, England and other countries. It is also reported that the Krupps have obtained a concession in Chile and will commence immediately the construction of the largest steel and munitions plant in South America.

Export houses report that Japanese business is picking up in every line with the exception of steel. Iron and steel prices in that market remain low due to the quotations made on material by Germany. One New York export house is now holding a Japanese inquiry for 200 tons of black sheets.

The Baldwin Locomotive Works has announced that they have signed a contract to furnish 30 locomotives for the Pekin-Hankow railway of China. German builders are able to underquote the American plants but cannot promise as speedy deliveries.

Some exporters express considerable pleasure over one or two sales made to South Africa, indicating they are not being entirely crowded out of British colonial possessions. One small sale of plates, required in mining operations was made to South Africa. A South African inquiry for corrugated bars also is current.

Shipbuilding Is on Decline

Washington, March 8.—Dwindling demand for ship steel is seen in the report of the department of commerce that on Feb. 1 private American shipyards had under construction or contract 252 steel vessels of an aggregate gross tonnage of 977,903, compared with 275 vessels, of 1,067,293 gross tons, on Jan. 1. In point of gross tonnage, on Feb. 1, the Sun Shipbuilding Co., Chester, Pa., led with 83,900 tons, with the Merchant Shipbuilding Corp., New York, second with 76,900 tons, and the Federal Shipbuilding Co., Newark, N. J., third with 71,500 tons.

Await Harding's View on Tariff

New President's Opinions Sought by Congressional Leaders Before Undertaking Work Begun Under Wilson Administration—Immigration Bill Given Pocket Veto—Lever Act Now Off Books—Strike Report Not Printed

WASHINGTON, March 8.—Whether an emergency tariff, to cover various iron and steel raw materials and products as well as other farm and manufacturing products, will be drafted before the convening of the special session of congress, and whether tariff or finance legislation will be given the right-of-way at this special session will probably be decided shortly. Republican house and senate leaders are seeking an expression of opinion from President Harding. It is taken for granted the President's views will prevail.

The house ways and means committee, to which will be entrusted the scrutiny of all tariff and tax proposals, is to be called together on March 14, according to present plans of Chairman Fordney, to consider a financial legislation policy. At this time it is also the hope that the committee will know whether to draft an emergency tariff, to protect American industry in the nine to 10 months that must be set aside for passage of a permanent tariff act, or to begin work at once on the permanent measure.

President Wilson having vetoed the Fordney emergency tariff covering farm products, the only tariff legislation now on the statute books is the Underwood act of 1913. It is taken as a certainty that if any further emergency tariff legislation is enacted, protection will be extended to such articles as lead, zinc, ferromanganese, and the various iron and steel articles on which a duty was asked at the recent hearings before the ways and means committee.

It is consequently of great importance that those producers desiring a duty to equalize their position with that of their foreign competitors submit briefs immediately to Chairman Fordney, for little time will be granted to consideration of the duties, and probably a hasty revision of the Payne-Aldrich act will be undertaken. At least two sets of hearings on the permanent tariff bill will be held, and these hearings probably will not begin until later in April or May.

The calling of the special session in a few weeks likely will see both house and senate deluged with tax proposals. On all sides it is taken for granted that the excess profits tax will be amended, if not entirely repealed. Advocates of a sales tax are most active, and hearings on such a proposal will probably be held shortly by the senate finance committee as well as the house ways and means committee. At this date, however, nothing definite has come either from the White House or the new secretary of the treasury as to the administration's preference on taxation matters, and all proposals and discussions cannot exceed the bounds of speculation.

Wrong Bills Are Killed

One of the last acts of the outgoing President was to sign the resolution repealing all war legislation excepting the statute creating the war finance corporation and the trading-with-the-enemy and Liberty bond acts. The Lever act, section 4 of which was held unconditional by the Supreme Court last week, is now definitely off the statute books, and further regulation of coal and coke under it is now impossible. A pocket veto was the fate of the Dillingham bill limiting immigration to 3 per cent of the number of aliens within the United States in 1910. It is probable that this bill will be re-enacted by the incoming congress.

The Townsend-Frelinghuysen measure drafted to relieve the railroads from the necessity of advertising for purchases of supplies exceeding $50,000 in any one year from any company in which there is a community of interest between the railroad and the supply company, died with the outgoing congress, but probably will be reintroduced. The guaranty still due the carriers, was given the preference over the Townsend-Frelinghuysen measure, and did become a law.

The metric system bills, put into both the house and the senate, never emerged from committee. The Walsh resolution seeking the publication of the Interchurch World steel strike report also succumbed in committee. The Kenyon bill to control the packing industry and the Calder bill to control coal also fell by the wayside, as did the patent office reorganization measure. Although the navy appropriation measure failed of passage, the sentiment developed was clearly in favor of a big navy, and it seems likely this feeling will be expressed in such legislation in the next year or two.

The Columbia mill of the Reading Iron Co., at Columbia, Pa., was closed down March 3, making all of the rolling mills in that district idle.

Traffic Improves

As Payments Begin Under Winslow Bill Covering $400,000,000 Due

Washington, March 8.—For the first time since the turn of the year the railroad situation has shown improvement. Loading of freight has increased, very slightly but nevertheless virtually the first increase since the downward trend set in last October. Even more gratifying to the railroads is the fact that the treasury, in accordance with the provisons of the Winslow act, is again making partial payments of the $400,000,000 due under the guaranty provisions of the Transportation act. This renewal of payments will mean a clearing up of more than $2,000,000,000 owing by the carriers.

In the week ended Feb. 19 the carriers loaded 695,506 carloads of revenue freight, compared with 681,627 carloads the first week preceding and 696,997 the second. In the corresponding weeks of 1920 the loading was 772,102 carloads, and of 1919, 700,913 carloads. Loading of ore picked up somewhat, and was 11,702 carloads as against 8094 in the week of Feb. 12. Loading of coal and coke, however, declined to 8735 carloads of coke and 146,438 of coal.

The number of coke cars idle in the United States was 9309. In the United States 172,626 coal cars were idle, and in Canada 87.

Freight locomotives costing $3,000,000 are to be purchased by the Western Maryland railroad. The first payments certified to the treasury by the commerce commission under the new Winslow act were for $6,000,000 to the Great Northern and $637,190 to the Chicago, Milwaukee & St. Paul.

The Oliver Iron Mining Co., Duluth, has filed complaint against the Duluth, Missabe & Northern railroad, before the interstate commerce commission, asking $95,394.26 reparation for alleged excess freight charges on iron ore between a mine of the company at Arcturus, Minn., and a concentrating plant at Bovey, Minn. Somewhat similar is the action for $82,356.39, brought by the Minnesota Steel Co., also against the Duluth, Missable & Northern.

Valley Output

Of Iron and Steel at 35 Per Cent of Capacity

Youngstown, O., March 8.—Iron and steel production in the Mahoning valley at the start of this week probably did not exceed 35 per cent of capacity. Open-hearth operation is at the rate of 33 1-3 per cent representing 22 furnaces. This is 2 per cent less than last week. The Carnegie Steel Co. took off two units and the Youngstown Sheet & Tube Co. added one. The active list includes four at the plant of the Trumbull Steel Co., 10 at the Ohio works of the Carnegie Steel Co., and six at the East Youngstown plant of the Youngstown Sheet & Tube Co. The Republic Iron & Steel Co. plans to resume operations in the open-hearth department next week.

A loss of six mills in the sheet industry here this week leaving 34 units active, places the rate of operations at 32 per cent. Mills engaged in rolling are distributed as follows: Five at the plant of the Trumbull Steel Co., six at the Newton Steel Co., six at the Republic Iron & Steel Co., nine at the Brier Hill Steel Co., and eight at the Youngstown Sheet & Tube Co. With the exception of last week's rate of production, sheet mill operation now is the highest since the first week in January.

Blast furnace operations remain the same as one week ago, with 10 steelworks and one merchant furnace blowing. They represent 41 per cent of capacity.

The Lower Union works of the Carnegie Steel Co., is idle. While its Upper Union works is operating nearly at capacity only three mills at its McDonald plant are rolling. The Trumbull Steel Co. started its hot-rolled strip mill and six hot tin mills this week in addition to its five sheet mills. Four sheet mills at the Canton, O., works of the Superior Sheet Steel Co. also are in operation, other mills in this district being idle this week.

More Stacks Blown Out in Chicago District

Chicago, March 8.—A further reduction of three blast furnace stacks has been made by the Illinois Steel Co., one stack being blown out at South works, one at Gary and one at Milwaukee. Three others were blown out recently and one turned from pig iron to ferromanganese, making a total loss of seven stacks in about a fortnight. At present this company has five active stacks at South Chicago, seven at Gary, two at Joliet, a total of 14 producing pig iron, and one on ferromanganese. Production is about 50 per cent of capacity.

This is not as low a schedule as prevailed during November and December 1914, just after the beginning of the world war, when the company operated eight out of its 23 steelworks stacks, close to 30 per cent of capacity.

The Inland Steel Co., continues to operate two of its three blast furnaces, giving a pig iron production of 66.6 per cent, while only about 33.3 per cent of its steel finishing capacity is busy. The excess iron is being applied against contracts for merchant purposes.

Active Furnace List Is Further Depleted

Pittsburgh, March 9. —Typical of blast furnace conditions in Pittsburgh and Valley districts, W. P. Snyder & Co., report that for the first time in history all their stacks are out of blast. E. W. Mudge & Co. will blow out their remaining furnace, Ella, at West Middlesex, Pa., this week as soon as coke on the way has been used up. The Carnegie Steel Co. now has 36 out 59 blast furnaces in operation, but believes that this will register the low point.

In the southern Ohio district every furnace making straight pig iron has been rendered idle with the blowing out of the final Marting stack at Ironton. The Globe furnace at Jackson remains in on ferrosilicon and silveries is the only active plant in the district.

Denies Restoring Prices

Buffalo, March 8.—The large steelmaker of this district which was quoted in news dispatches late last week as having "returned" to the Steel Corporation schedule denies this report, and states that it has no definite price policy. This interest has been meeting competitive prices during the past three weeks but has at no time announced a fixed reduction. While this interest will reserve the right to take iron and steel at any price it chooses, it is very probable that there will be less reductions to meet competition than in the past. Prospective customers will find that the quotations being made by this plant will be virtually the Steel corporation prices, as there is said to be scant profit for the local producer in the cut prices.

The Wickwire Spencer Steel Corp., Worcester, Mass., and Buffalo, reports for the 11 months ended Nov. 30, 1920, net profit applicable to interest, depreciation and federal taxes of $3,305,329.

Ingot Output

Continues The Rapid Decline of The Last Three Months

Production of steel ingots for February totaled 1,749,477 gross tons, according to figures compiled by the American Iron and Steel institute from reports of 30 companies which in 1919 produced 85.12 per cent of the output of the United States. Compared with the January revised total of 2,203,186 tons, the February output shows a loss of 453,709 tons. Almost one-half of this drop may be attributed to the 3-day shorter month of February compared with the previous 31-day month.

Divisions of the production for February were as follows: Open-hearth process, 1,295,863 tons; bessemer process, 450,818 tons; and all other processes, 2796 tons. Corresponding revised figures for January were: Open-hearth process, 1,591,281 tons; bessemer, 608,276 tons; and all other, 3629 tons.

Following are the institute's production figures for 1920 and the first two months of 1921:

Months	Open hearth gross tons	Bessemer, gross tons	All other, gross tons	Total, gross tons
1920				
Jan....	2,242,758	714,657	10,687	2,968,102
Feb.....	2,152,106	700,151	12,867	2,865,124
Total 2 mo.	4,394,864	1,414,808	23,554	5,833,226
March..	2,487,245	795,164	16,640	3,299,049
April...	2,056,336	568,952	13,017	2,638,305
May....	2,251,544	615,932	15,688	2,883,164
June....	2,287,273	675,954	17,463	2,980,690
July....	2,135,633	653,888	13,297	2,802,818
Aug....	2,299,645	695,003	5,784	3,000,432
Sept....	2,300,417	693,586	5,548	2,999,551
Oct....	2,335,863	676,634	3,485	3,015,982
Nov....	1,961,861	673,215	3,594	2,638,670
Dec....	1,687,162	649,617	3,586	2,340,365
Total for year..	26,197,843	8,112,753	121,656	34,432,252
1921				
Jan....	1,591,281	608,276	3,629	2,203,186
Feb....	1,295,863	450,818	2,796	1,749,477
Total, 2 mo.	2,887,144	1,059,094	6,425	3,952,663

The average output of the 30 companies per working day in February was 72,894 tons or approximately 85,600 tons for the whole industry. Corresponding figures for January were 86,276 tons and 101,350 tons respectively. February contained 24 working days compared with 26 in February and showed an approximate loss of 15,700 tons per day. Based on the February rate of output, the annual rate of production for the 30 companies was approximately 22,670,000 tons and for the entire country, approximately 26,630,000 tons. The same figures for January were 26,830,000 tons and 31,520,000 tons respectively. Total of the first two months' production of 1921 was 3,952,663 tons, a loss of 1,880,563 tons from the 5,833,226 tons made during the corresponding period of 1920.

British Iron Prices Cut Heavily

Cleveland Brands of Pig Reduced $8.77, and Hematite $7.80—National Bar Manufacturers' Association Lowers Quotations $7.80, but Buyers Still Demand More—Wages Being Revised—Germany Books 60 Locomotives for Spain.

The Iron Trade Review Staff Cable

European Headquarters,
THE IRON TRADE REVIEW,
2-4 Caxton House, Westminster, S. W.

LONDON, March 7.—The unprecedented reduction of £2 5s ($8.77) has been made on all brands of Cleveland pig iron, and £2 ($7.80) on hematite. More furnaces in Great Britain have been blown out as a result of the general lack of demand. Sixteen West coast furnaces have been out since last autumn. The price of furnace coke has been further reduced 10 shillings ($1.95) per ton.

The National Bar association has reduced the price of iron bars £2 ($7.80) to £24 10s ($94.75). Nut and bolt iron has been reduced to £22

Sterling—$3.90

($85.80) and best bars to £27 10s ($107.25). Belgian nut and bolt iron is offered in England at £14 ($54.60), delivered. The price of iron skelp has been reduced £1 ($3.90) to £26 ($101.40). More extensive reductions are being demanded by many manufacturers.

The Midland wages board is considering the iron and steel works employers' claim for the abolition of all special wartime wage advances. Wages of Cleveland ore miners have been reduced 10 shillings ($1.95) per day. Ten thousand men are unemployed in the Teeside district.

Belgian billets are quoted in England at £9 ($35.10), delivered. Two South Wales railways have ordered a tonnage of Belgian rails at £12 ($81.90) in preference to rails made in South Wales and offered at £18 ($70.20).

Germany has booked 60 locomotives for Spain at half the price quoted elsewhere. Exports of iron and steel from the Middlesborough district in February amounted to 21,640 tons, or 11,250 tons less than in January.

Luxemburg foundry iron No. 3 has been reduced to 1100 marks ($17.82).

Sweeping Reductions Expected in British Steel

European Staff Correspondence

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,

BIRMINGHAM, Eng., Feb. 24.—Although little business is being done at Birmingham, there is some relief from the general feeling of hopelessness which characterized the iron trade and steel trade recently. The makers of tool steel, who have some important works in Birmingham, are impressed by the important orders they have been getting and which have enabled them to keep their works going an extra day or two per week. The improvement is chiefly in demand for hammer heads, blocks, etc., for dies, material for drills and other descriptions of high class steel. The market for the better class of steels generally shows some improvement.

It cannot be said that the general iron and steel trade is better. Some startling figures have been published with regard to unemployment. In Sheffield there are 15,000 unemployed listed on the official registers, exclusive of men working part time. The situation is rather alarming in South Wales. At Ebbw Vale in particular part of the works have been closed for several weeks and now all the employes, including the clerical staff, have been given 14 days notice. The workmen at some of the collieries have been included, and it is expected that 10,000 to 12,000 will be added to the idle list

Sterling—$3.91

when the notices expire. A large ironworks in North Staffordshire has taken a similar step, and the Welsh notice also is applicable to the workers at the Northamptonshire iron ore mines connected with the company.

The feature of the meeting of the Birmingham iron and steel exchange last week was a drastic reduction in the price of Derbyshire pig iron. The price of forge material was put down £1 10s ($5.86) and of foundry iron £1 5s ($4.88), making the new selling price £9 10s ($37.14) for forge and £10 ($39.10) for foundry, with the usual additions for higher numbers. Both these quotations are f.o.t. The Northamptonshire makers, it appears, are making no attempt to act together, and have not made any formal price revision. But it may be taken for granted that their reductions will be pro rata with those of the competing district of Derbyshire.

The most noticeable development during the past week has been the greater prominence of foreign pig iron. A great deal of pig iron is being offered at Cleveland both by France and Belgium at prices ranging between £7 ($27.37) and £8 ($31.28) per ton and the import returns show that a large tonnage of this material must have been purchased. The quality is spoken of favorably, the Belgians being prepared to sell to analysis.

No noticeable addition has been made to the number of idle furnaces in the North of England, although several are ready to damp down or blow out if the position does not improve. Another has been added to the number of idle furnaces in the West of England, namely at Cleator Moor, this being the last furnace of the Whitehaven Iron & Steel Co. to go out of blast. In the Millom district four furnaces are completing certain orders and probably will go out of blast within the next fortnight unless the position improves.

The comparative disinterest of the steel manufacturers in regard to foreign competition is a matter of comment. This competition increases in severity, notwithstanding the improvement in foreign exchanges. Remarkably low quotations have been received by Birmingham merchants. Steel billets are quoted at £8 10s ($33.23) Antwerp, steel rounds £10 15s ($42.03) and mild steel plates suitable for various engineering purposes at £15 5s ($59.63).

Belgian sheets can be bought from £18 ($70.38) to £20 ($78.20) per ton, or £4 ($15.64) below British quotations. There is talk of a general consultation of sheet manufacturers, the result of which is expected to be a

Current Iron and Steel Prices of Europe

British Market

Corrected to Date by Cable

Home Market Prices. Gross Tons at Works or Furnace

	£	s	d	$
SEMIFINISHED STEEL				
Billets, soft steel	12	10	0	48.75
Sheet bars	12	10	0	48.75
Wire rods	16	15	0	65.33
FINISHED STEEL				
Steel bars, England, ½ to 3-inch	16	10	0	64.35
Ship plates, England	21	0	0	81.90
Ship plates, Scotland	21	0	0	81.90
Beams, England	19	0	0	74.10
Beams, Scotland	21	0	0	81.90
Sheets, black, 24 gage	23	0	0	89.70
Sheets, galvanized, 24 gage	24	10	0	95.55
Rails, 60-lbs. and over	18	0	0	70.20
Tin plate, base box, 108 lbs.	1	7	6	5.36
Steel hoops	20	0	0	78.00
PIG IRON*				
West Coast Hematite	11	0	0	42.90
Hematite, East Coast Mixed No.s	9	0	0	35.10
Middlesborough, Basic	7	0	0	27.30
Middlesborough, No. 3	7	10	0	29.25
No. 3 Foundry, Derby, Leicester, Nottingham	10	0	0	39.00
No. 3 Foundry, Northamptonshire	8	10	0	33.15
No. 3 Foundry, Staffordshire	10	17	6	42.41
No. 3 Scotch Foundry	10	10	0	41.85
Ferromanganese 78 per cent	22	10	0	87.75
COKE				
Yorkshire furnace	2	5	0	8.78
Yorkshire foundry	3	0	0	11.70

French Market

Prices Last Reported

	Francs per metric ton (2205 lbs.)	$
PIG IRON		
Hematite, Lorraine	625	37.50
Foundry, Longwy, No. 2, sand-cast	347	20.82
Foundry, Longwy, No. 2, chill-cast	380	22.80
Foundry, Longwy, No. 3, sand-cast	350	21.00
Foundry, Longwy, No. 3, chill-cast	350	21.00
COKE		
French furnace	135	8.10
German, Belgian and British furnace	135	8.10
SEMIFINISHED STEEL		
Blooms	745	44.70
Billets	745	44.70
Sheet bars	745	44.70
FINISHED STEEL		
	Francs per 100 kilos (220 lbs.)	$
Merchant bars	75	4.50
Angles	75	4.50
Normal beams and profiles	75	4.50
Plates, bridge and tank, 5 millimeters and thicker	105	6.30
Sheets, blue annealed, Ardennes	109	6.54
Bars, cold-drawn, 40 to 60 millimeters round	115	6.90

Pig iron prices, are f.o.b. cars at Longwy, Briey or Thionville, according to the schedule of the Comptoir des Fontes; semifinished steel prices, by the Comptoir Siderurgique de France, are delivered at principal consuming centers; finished prices, by the Paris Consortium, are delivered at Paris.

Belgian Market

Prices Last Reported

	Francs per metric ton (2205 lbs.)	$
PIG IRON		
Foundry, No. 2, Belgium	325	22.75
Foundry, No. 2, Luxemburg	350	24.50
Basic, open-hearth, Belgium	300	21.00
Basic-bessemer, Belgium	300	21.00
Basic-bessemer, Luxemburg	...	.....
SEMIFINISHED STEEL		
Blooms	450	31.50
Billets	475	33.25
Sheet bars	500	35.00
Wire rods	675	47.25
*Standard rails	600	42.00

	Francs per 100 kilos (220 lbs.)	$
FINISHED MATERIAL		
Merchant bars	50 to 55	3.50 to 3.85
Normal beams and profiles	52.50 to 55	3.68 to 3.85
Plates, 5 millimeters and thicker	72.50	5.08
Plates, 3 to 5 millimeters	77.50 to 80.00	5.43 to 5.60
Sheets, black, 3 millimeters	85.50 to 90	5.99 to 6.30
Plain wire	...	.....
Sheets, galv., 1 millimeter	190 to 195	13.30 to 13.65

*Sold on same basis as semifinished material.

All prices f.o.b. furnace or works, except finished material, for which delivered prices are quoted.

fairly substantial price reduction. In the North of England a few works are operating on old contracts. The attitude of the steelmakers generally is that with the present high cost of production and the very unfair foreign competition, arising from the condition of the exchanges, it is hopeless for them to attempt to meet the price cuttings under present circumstances. They are waiting for a substantial reduction in fuel, and if the de-control of coal at the beginning of March should bring down coke and coal prices, it is considered likely that the whole range of selling prices for finished and unfinished steel will be reduced.

There is a great amount of dissatisfaction at the slow rate of price reduction recently decided on by the bar association. Many manufacturers feel that the situation should be dealt with in a much more drastic manner, and at least seven firms have advised the officers of the association that they do not propose to be bound to the official minimum of £26 10s ($103.61) per ton. They are quoting £24 10s ($95.79) and they point out that even this price is 10 shillings ($1.90) above the competing district of Lancashire.

The makers of iron skelp are finding keener competition from steel. The standard of iron skelp now is £27 10s ($107.52) per ton, which appears to be adhered to. It is possible to buy steel skelp, chiefly from the rerolling mills, made from Belgian semifinished material, at £19 ($74.29) per ton. Steel accordingly has been used to a greater extent, but in a few cases tube buyers specify iron.

The galvanized sheet trade is practically extinct for the time being. All the Midland works are idle and stocks are sold out. The selling price continues to be £25 ($97.75), but attracts no business. In South Wales most of the thin-gage works are closed.

The tin plate trade continues stagnant. It is believed that a further reduction will be made in the price of tin bars. Manufacturers continue to quote £1 14s ($6.64) for their basis box of tin plate, but merchants' sales are usually from £1 10s ($5.86) to £1 11s ($6.06).

French and Belgians Plan Price Pact

European Staff Correspondence

THE passing days bring with them hope of a recovery of business, and iron and steel producers who are not pessimists see no possibility of a better situation for several months.

Franc—$0.06

The production of pig iron has been reduced to a minimum, and stoppages of furnaces continue. Despite considerably lower prices, demands are exceedingly small, and available stocks are sufficient to cover them. Even the largest makers are seeking business among small con-

sumers and offer them prices far below the last quoted by the Comptoir de Longwy.

Luxemburg competition is having more and more effect on the French market, both as to prices for home and export trade. Accordingly French interests are beginning to think again of an international agreement.

Producers in France, Belgium and Luxemburg are seriously considering getting together to standardize prices to avoid competition among themselves and thus become stronger rivals in foreign markets, especially against the Germans. Last November a plan for such a triparite agreement was launched, but lack of an understanding among the French producers made it impossible.

Some of the French interests wanted the orders for pig iron to be distributed among the furnaces proportionate with their capacity and without making a distinction between basic-bessemer or basic open-hearth and 3 per cent silicon foundry iron, whereas other producers wanted to have orders for pig iron distributed according to capacity of each plant but by grade.

A great proportion of prices now quoted are merely nominal. Comparisons between sales made by manufacturers show variations from 5 to 20 francs ($0.30 to $1.20) below regular quotations.

Franc—$0.07

Brussels, Feb. 24.—Luxemburg minette ore is being offered at 10 francs ($0.76) a ton according to advices.

Comparison of prewar iron and steel production in Belgium with production today makes the present condition of business seem incomprehensible. Out of 49 furnaces in Belgium Feb. 1, 25 were working. In January the 25 produced 132,000 tons of pig iron as against 212,000 tons in January, 1913.

The whole metallurgical industry is struggling painfully along. It is at grips with Luxemburg and French competition, and this affects the export trade as well as the home trade. Basic-bessemer is down to 325 francs ($22.75) per ton, and foundry iron containing 3 per cent silicon is 350 francs ($24.50). These grades can hardly be expected to go to a much lower level, at least for some time.

Germany Reports Lack of Foreign Sales

European Special Correspondence

DUSSELDORF, Germany, Feb. 24.—Since the conference in Paris the situation in regard to German iron and steel has become more and more unsatisfactory. The domestic market is stagnant as a result of the uncertainty with regard to prices likely to prevail after March 1. Works are still operating on old contracts, otherwise they would be entirely unemployed. Even the large works now feel severely the scarcity of orders. Practically all consumers are relying on a further material reduction in prices. Foreign orders are entirely absent, buyers holding back their contracts to ascertain the prices likely to prevail for delivery of products after March 1. Belgium, France and Lorraine appear to be accepting orders at almost any price. They are much more favorably situated than German manufacturers because they are able to rely upon a reduction of their own costs. These foreign manufacturers apparently have an abundance of good coal while their workmen have much better conditions. On the other hand German works have to face increased wages and great increases in railway freights. In view of the enormous deficit recently shown by the state railways everyone expects an increase of from 50 to 75 per cent in freights.

The labor situation is confused. While the number of unemployed rapidly increases there is a marked increase also in the number of strikes. Serious acts of sabotage are reported. For example, at the large chemical works of Fried Bayer & Co., at Leverkusen near Cologne, the workmen destroyed a department in which sulphuric acid was manufactured, and as a result of this destruction 8000 workmen were out of employment for some months.

The fuel situation is becoming slightly easier, mainly as a result of the decrease in consumption. Many factories have been forced to close through lack of orders, and this has led to some fuel accumulation. The supply of ores greatly exceeds the demand. It is well known that Europe is now producing only half the quantity of pig iron it made before the war and this means an enormous surplus of ore. Best rubio ore is being pressed on the market at £2 8s ($9.32) c.i.f. Rotterdam basis, for 50 per cent iron; raw and phosphoric limey Lorraine minette ore is available in any quantity at 21 francs ($1.26) per metric ton, free on truck at the mines.

The pig iron market is becoming easier, and prompt deliveries can be obtained. There is practically no demand for semifinished and finished material, all consumers postponing orders in expectation of lower prices.

It is expected that after prices have been definitely settled on March 1, and the results of the London conference are known, a strong demand will set in.

Advises Court Relief

Washington, March 8.—An answer by former Secretary of War Baker to the mandamus action instituted in the District of Columbia courts by the Morgan Engineering Co., Alliance, O., recommends the company seek recourse in the federal court of claims, in the matter of a claim disallowed by the war department contract claims board. The company sought to force the secretary into reviewing the action of the claims board disallowing payment for work performed on a certain contract after the signing of the armistice. The reply of the secretary was that, in view of the 30,000 or more claims, a personal review would be impossible.

Western Markets

Show Little Activity—Buyers Await Further Price Cuts

Staff Correspondence

San Francisco, March 5.—The local iron and steel market shows no definite signs of early improvement. Price cutting by the eastern independent mills has failed to stimulate business in the Pacific coast states. Consumers seem to be waiting for further reductions.

Activity in the San Francisco pig iron market is limited to a few inquiries, each involving less than 100 tons, for prompt use. Most of the foundries have sufficient iron for some time. One lot of five hundred tons of Chinese pig iron was sold to a southern California plant at $36 per gross ton, aboard vessel at dock.

With the exception of one lot of 2000 tons of foundry coke at $23, delivered, coke sales are restricted to small tonnages for immediate use. Foundries are operating far below normal, and the general situation has not improved.

Bar mills report practically no new business. The open-hearth furnaces of

the Judson Mfg. Co. have resumed operations. The South City plant of the Pacific Coast Steel Co. is operating two furnaces for stock work only, and reports no orders booked. The price of 3.75c for steel bars which the local mills are adhering to is purely nominal, and some interests believe little business will be secured at this figure when 2.10c, Pittsburgh is being quoted by eastern mills.

While a few inquiries for small tonnages of steel plates have developed, no sales are reported. Price cutting does not seem to have stimulated demand. One or two interests here are ready to meet concessions made by other rollers to old customers.

The sheet market is listless. Jobbers and consumers still have on hand large stocks which are moving slowly, few inquiries coming in. As an indication of the nonreceptive attitude of consumers, a quotation of 5.25c, Pittsburgh, on galvanized sheets made by one independent mill was refused.

Aside from a few small jobs, new construction requiring steel is at a low point. Price cutting has discouraged structural business. Bids for a pier were rejected and further action postponed indefinitely. The only sizable contract awarded of any size, was to Austin Co. for 110 tons for the Kroyer Motors Co. factory to be erected in Stockton, Cal.

The present price of heavy melting steel scrap is $13.50 to $14, delivered, and practically no business is being transacted. Dealers are continuing to pile scrap, anticipating much higher prices. The present capacity of the six coast mills is approximately 420,000 tons of bars and small shapes per year. Practically all the mills were enlarged in the last year or two, to take care of the heavy shipyard and export demand. With the export market dead, and shipbuilding greatly curtailed, leading interests state that a conservative estimate of domestic consumption, so far as the products of the local mills are concerned, will approximate 250,000 tons per year. Scrap for this tonnage can be secured from the states west of the Rockies.

Acquires Town Site

The H. C. Frick Coke Co. which recently took options on surface lands on the Coulson and Brown farms at Gingerhill, Pa., along the Monogahela river has closed the purchase, making a first payment. This brings the total surface lands acquired by the Frick interests to approximately 400 acres and is the first step in the development of the coal lands owned by the company along the river. Surveyors already are determining a sit for the mining town.

Court Acts

To Permit Reorganization of Maxwell and Chalmers Motor Companies

Indianapolis, March 8.—Charles Martindale of Indianapolis, has been appointed by Judge A. B. Anderson in the federal court, as a master in chancery for the Maxwell Motor Co., Inc., to receive and adjust all claims of creditors against the company within the jurisdiction of Indiana, preliminary to a reorganization of the Maxwell Motor Co. and Chalmers Motor Co., which have been merged. The appointment was agreed to by the company and, according to the attorneys who filed the petition such an appointment was sought to avoid a multiplicity of suits by creditors of the Maxwell company and to permit the proper steps for reorganization of the merged automobile companies to be taken without interference.

A master in chancery for the Maxwell company has been appointed in a similar way at Detroit, and a large volume of the claims against the company by creditors have been or will be filed in that jurisdiction, it is said. Plans for similar action in the district court at Dayton also are contemplated.

The case was brought into court through a petition by Jenks & Muir Mfg. Co., Detroit. This company, appearing in behalf of itself and other creditors. The petition points out that the Maxwell company has plants in Detroit, Dayton and New Castle. It says the company is indebted in the sum of $4,000,000 for materials and supplies, and that it owes about $12,000,000 for money received in the form of loans from various creditors. The petition says the company has more than $25,900,000 in current assets, such as cash, securities, accounts receivable and inventories, and capital assets of about $8,500,000, such as real estate, buildings, machinery, etc.

Judge Anderson has dismissed the petition in bankruptcy brought against the Rapid Rim Co., Huntington, Ind., by J. Archie Borland, former president of the company, and others, on showing that the bankruptcy proceedings were not brought within four months after a receiver had been appointed for the company. Petition for dismissal of the proceedings was filed by E. E. Allen, of Huntington, who was made receiver for the company by the Huntington circuit court.

Tin Plate Machine Output

Attention has been called by Perin & Marshall, consulting engineers, New York, to the fact that the capacity of a tin plate machine manufactured by Messrs. Thomas & Davies, Whitchburg Cardiff, South Wales, as stated in an article on page 1054 of the Oct. 19, 1919 issue of THE IRON TRADE REVIEW is incorrect. Perin & Marshall, who are representatives of the manufacturers in the United States, state that the machine has an average capacity of 3000 boxes per week of 16 shifts, which is equal to an average production of 564 boxes of tin plate per 24 hours. One machine at the Melingriffith works, where the machines were first installed, has made a record of 4183 boxes of 20 x 28-inch tin plate in one week of 126 hours, with a net tin consumption of less than 1.5 pounds per box. Another machine in the same plant has a record of 933 boxes in 24 hours.

Expect Decision Soon

Washington, March 8.—An early decision in the American Hardwood Lumber association case, in which is involved the legality of the open price plan, has been made impossible by the United States Supreme Court as a result of the court's ordering the case reargued. The motion for reargument came from within the court. The case automatically goes to the foot of the calendar, but it is expected that a motion to expedite it will be granted and the reargument made sometime in April. In the lower courts the government won its contention that the dissemination of market information such as production, stocks and quotations serves to maintain if not enhance prices. Much the same question was raised by the department of justice at St. Louis in instituting action against the Southern Pine association. To an extent, the American Hardwood Lumber and Southern Pine cases raise a doubt as to the legality of the limited open price arrangement within the iron and steel industry.

Belgian Steel Arrives

Galveston, Texas, March 5.—With the arrival here a few days ago of a shipment of iron and steel beams and girders from Antwerp, Belgium, what may become a large importation of these structural materials through the port of Galveston, has been inaugurated. The shipment was consigned to various dealers in structural steel in Texas and other parts of the Southwest. It is stated that other large orders have been placed in Belgium. Some of the railroads of Texas also are negotiating for the purchase of steel rails in Belgium, deliveries to be made through Galveston.

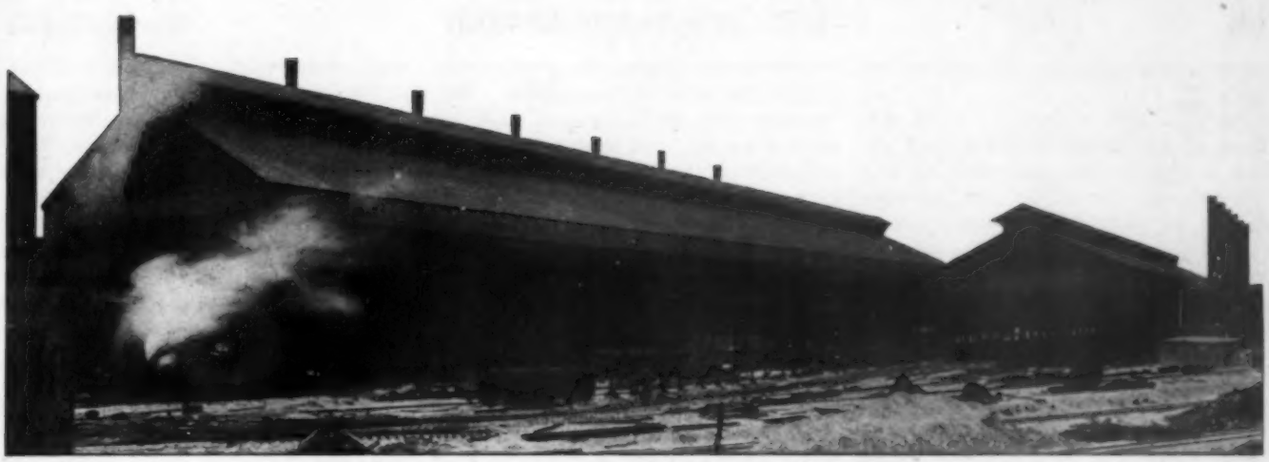

Fig. 1—Exterior of new buildings of the Weirton Steel Co., Weirton, W. Va. The building at the left houses the open-hearth furnaces, and that at the right the pit furnaces

Enters Ranks of Steel Manufacturers

Weirton Steel Co. Completes Open-Hearth and Rolling Mill Units and No Longer Depends on Outside Mills for Its Semifinished Material — Description of Plant

By C. H. HUNT

AN INTERESTING example of the evolution of a tin plate manufacturing company starting with a finishing plant only, broadening its operation by adding other lines of products, and finally reinforcing its position by the addition of facilities for the manufacture and control of the materials entering into the various finished products is furnished by the recent development and growth of the Weirton Steel Co., Weirton, W. Va. The company, originally known as the Phillips Sheet & Tin Plate Co., had its beginning at Clarksburg, W. Va. in July 1905 when a six mill tin plate plant was started. Four years later the company bought a site on the Ohio river above Steubenville, O., and commenced the erection of a 10-mill tin plate plant, marking the beginning of the present main plant and the town of Weirton. The tin plate plant at Weirton was started in February 1910 but has since been increased to a 26-mill plant. Another important addition was made by the company in January, 1912, by the purchase of the Pope tin plate plant at Steubenville, O., consisting of 12 mills and 20 tin stacks, so that including the additions to the Clarksburg plant, it now is operating 50 tin mills and 100 tin stacks, being the largest independent tin plate manufacturer in the country.

In June 1915, the company purchased the cold-rolled strip steel mill, known as the Weirton Steel Co., consisting of 18 cold rolling mills, and immediately commenced preparations for the addition of a 16 and 10-inch hot band mill, the former being placed in operation in December, 1916 and the latter in May, 1918. The strip mills were described in the Oct. 24, 1918 issue of THE IRON TRADE REVIEW.

This cold rolling department likewise was increased in the early part of 1917 by the addition of 22 cold mills, the

The author, C. H. Hunt, is chief engineer of the Weirton Steel Co., Weirton, W. Va.

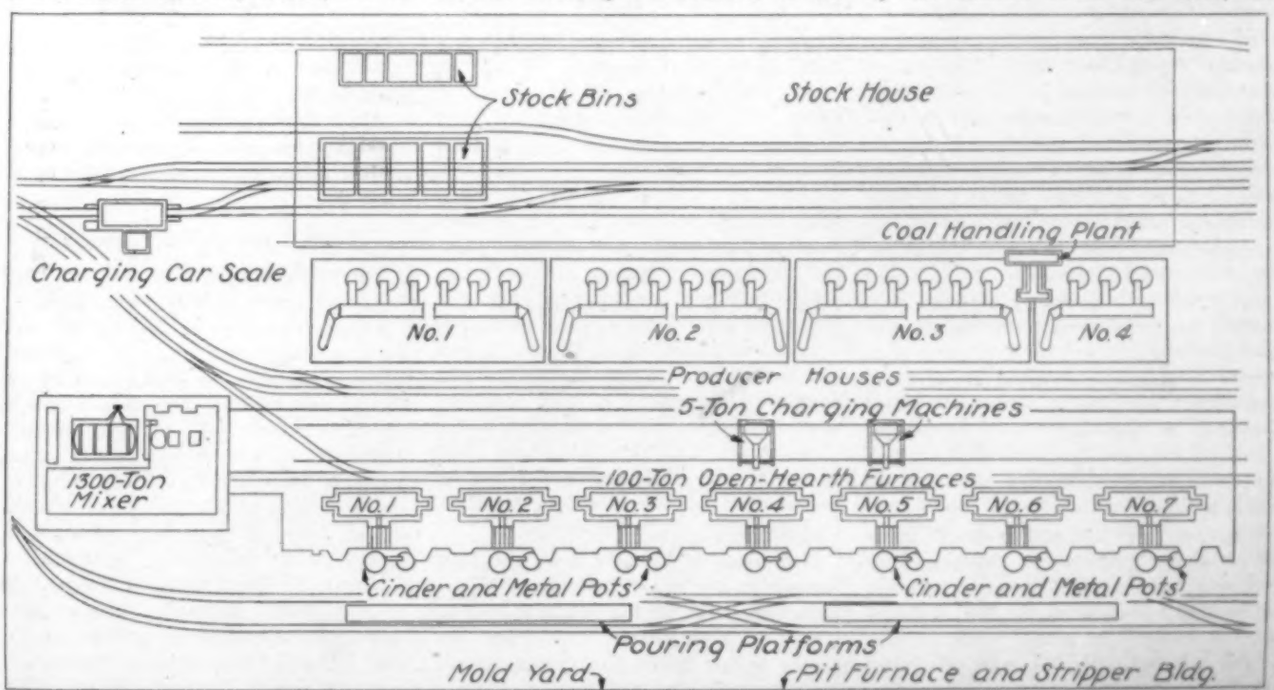

FIG. 2—ARRANGEMENT OF OPEN-HEARTH DEPARTMENT SHOWING FURNACES, PRODUCERS AND ACCESSORIES

company now operating 40 cold rolling mills.

Early in 1918, when the country was faced by an enormous shortage of pig iron needed for the production of war materials and munitions, the company decided to proceed with the construction of the present 500-ton blast furnace, which was blown in July 21, 1919 and was described in THE IRON TRADE REVIEW in the Oct. 2, 1919 issue.

Grouping of Units a Problem

The new steel plant, recently completed, is on the opposite side of the Pennsylvania railroad from the older plants. Therefore a serious problem was presented in the efficient grouping of the units of the plant to secure the most economical arrangement of transportation facilities for delivery of raw materials to each department as required; for the shortest and most direct interdepartment movement of materials during process of manufacture; and the delivery of sheet bar, slabs and billets to the finishing mills or to the railroad, and to so lay out these tracks that they would be adaptable to all future uses and extensions with the least change or interference with operations.

The gradual sloping of the site permitted the parallel arrangement of the gas producer houses and stockyard back of the open-hearth charging bay and the consequent ease of extension of these buildings in accordance with the extensions to the open-hearth building. The intention on completion of the plant to its ultimate length is to provide a connection at the south end from the stock house to the open-hearth charging floor for ease and avoidance of congestion in bringing cold stock to the furnaces at this end of the plant.

All inbound materials enter the plant at the southwestern entrance and are delivered to the storage yard or go direct to the point of consumption. Ore, limestone and for the present coke, are taken from the yard over a graded approach track to the high level tracks over the stock bins at the blast furnace, coke and limestone being unloaded direct from the cars into their respective pockets and the ore, during the season of its movement, either direct to the ore pockets or to the unloading track for movement to the storage piles.

Hot metal will move from the pouring tracks between the furnaces and boiler house to the mixer at the north end of the open-hearth building, while cast not required at the open-hearth plant may be poured direct from ladles into a pig machine, made by the Pittsburgh Coal Washer Co., located at the end of the cast house of the present furnace. The new plant was designed and built under the direction of C. H. Hunt, chief engineer of the company, under its operating head, J. C. Williams, vice president and general manager in charge of operations, the engineering organization of the company having prepared all plans, specifications and details for the steel plant and the general layout of the entire plant, including the blast furnace and provisions for the future coke plant. All excavations, foundations, fill, brickwork and installation of the machinery and equipment was done by the company under the supervision of the Jack Walsh Construction Co. The structural steel work for the buildings was furnished and erected by the McClintic-Marshall Construction Co., Pittsburgh.

Hot metal is brought from the blast furnace to the mixer building in 65-ton ladle cars built by the William B. Pollock Co., Youngstown, O. These are drawn by an 80-ton yard locomotive and are weighed on a 200-ton railroad track scale, furnished by the Strait Scale Co.

The 1300-ton cylindrical mixer, which at present is lined down to 1000 tons, was built by the Pennsylvania Engineering Co., New Castle, Pa. It is housed in a separate building at the north end of the open-hearth department, a section of which is shown in Fig. 4. The mixer is electrically operated by two 87½-horsepower motors, connected in series, and either motor is of sufficient capacity to operate the mixer in case of trouble with the other.

The delivery side of the mixer is on a line with the charging side of the open-hearth building and is at the same elevation or 19½ feet above yard level. From the mixer the metal is poured into 65-ton ladles of the same design as those used in bringing metal from the blast furnace to the mixer. The operator when pouring is located in one end of the control house with the scale beam at his side and has a clear view of the mixer and the ladle through a novel arrangement of windows in the control house and grating in the operating floor.

FIG. 3—VIEW OF CHARGING FLOOR IN OPEN-HEARTH BUILDING—THE SEVEN FURNACES ARE SHOWN AT THE RIGHT

Seven Open-Hearth Furnaces

The open-hearth department now comprises seven of the 14 contemplated furnaces, housed in a building 190 feet wide by 637½ feet long with a height from yard level to bottom chord of roof trusses of 66¾ feet. The furnaces are constructed to nominal 100-ton lines but have sufficient hearth area, being 16 feet wide by 40 feet long, to melt 120 tons at a heat. The furnaces are of heavy construction throughout, bound with cast-steel, water-cooled backstays. The furnace bottom is built up from a ¾-inch steel plate pan, resting on a transverse grillage of 15-inch I-beams, supported on twelve 24-inch 100-pound I-beams, placed longi-

tudinally and resting on two massive concrete piers supporting the furnace, the ends of these beams being extended as a cantilever over the top of the air slag pocket to support the wind box.

The gas and air regenerators, which are built separately, are 31¼ inches long inside, 20½ feet high from bottom of flue to top of arch and 8 1/3 and 21½ feet wide inside respectively. The checker work in the chambers is of standard type.

On account of the gravel formation of the valley in which the plant is located, the ground around the furnaces frequently becomes saturated with water coming down from the hillsides. Therefore the slag pockets, regenerators, flues and waste-heat boiler settings are built on a concrete pad. The sides enclosing the entire area under the charging floor are carried up above yard level, forming a water tight concrete pan. All brickwork resting directly on top of the concrete, which has a slight slope toward the pouring aisle side, rests upon a red brick sub-base. The latter is constructed to form drain ducts in the direction of the slope, and any water seeping through is thereby

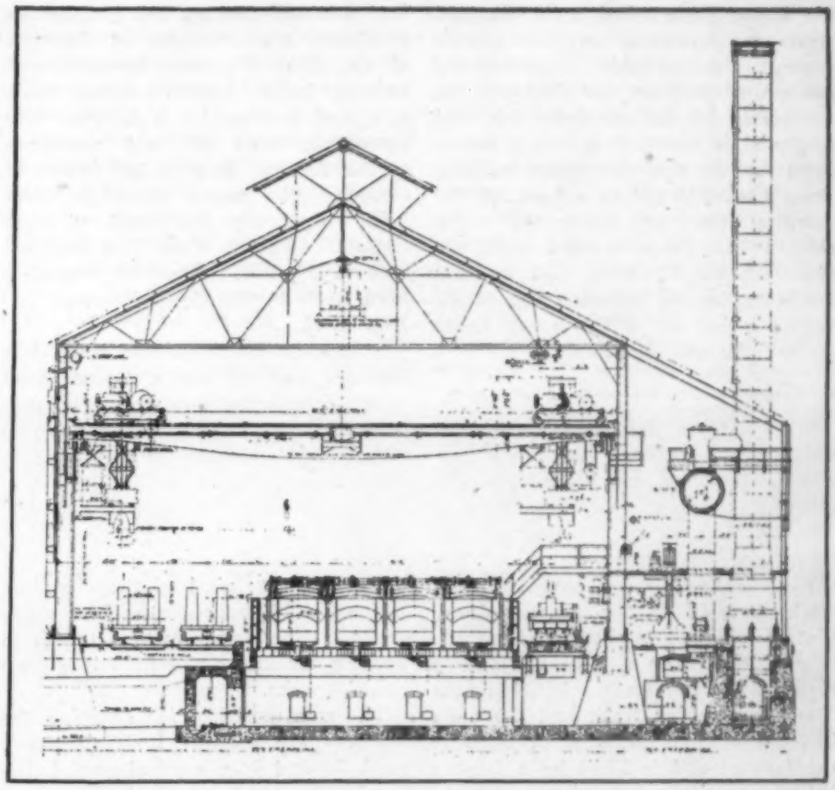

FIG. 5—SECTION THROUGH PIT FURNACE BUILDING

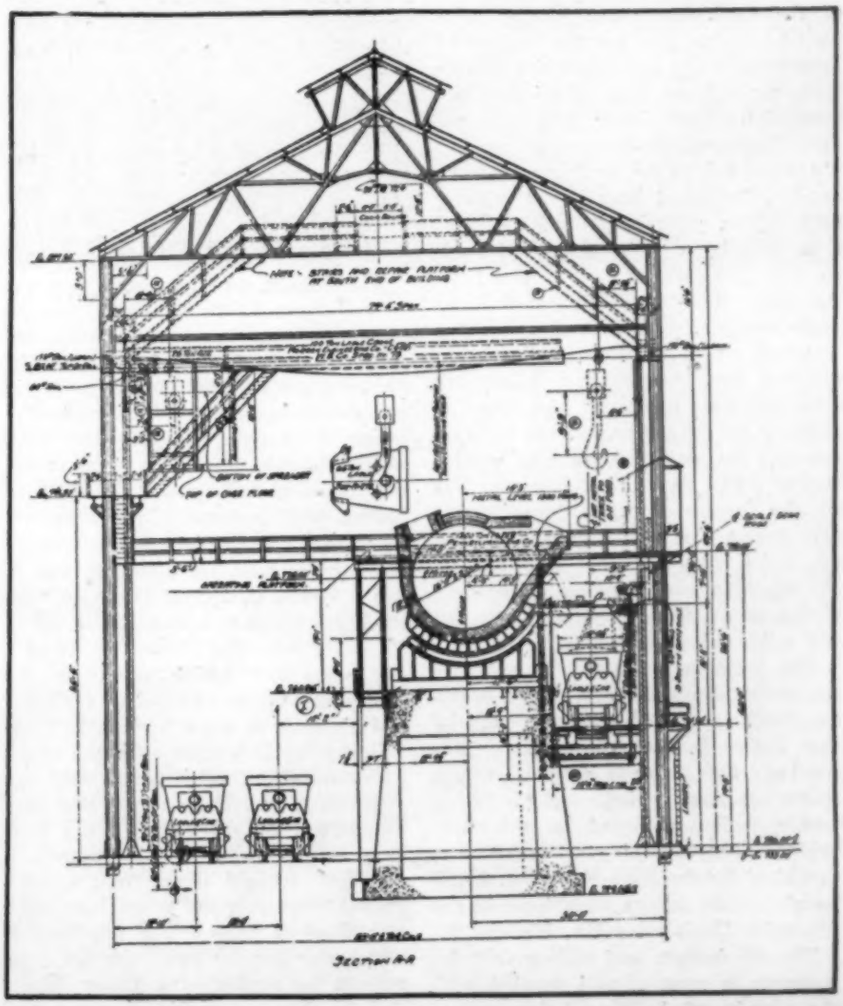

FIG. 4—CROSS SECTION THROUGH MIXER BUILDING

discharged into a drain trench without injury to the brickwork. The weight of the binding for the regenerator chambers, slag pockets and the boiler settings also is supported on the concrete pad.

The furnaces are provided with five charging doors and frames of the water-cooled type, made by the Blaw Knox Co., Pittsburgh. The three center openings are 36 x 48 inches with doors 40 x 56 inches; the end openings are 36 x 36 inches, with doors 38 x 42 inches. The doors are operated by motor-driven worm gear hoists, built by the Pennsylvania Engineering Works. The gas and reversing valves on furnaces Nos. 1 to 6 inclusive are of the McKennon water-cooled and water-sealed type. The gas inlet and reversing valves are 42 inches and the air reversing valve 54 inches, there being six to each furnace. No. 7 furnace is equipped complete with Knox water-cooled damper type valves.

A novel arrangement of control has been installed for operating the valves and doors, the controllers being placed overhead on girders spanning between the main building columns. This arrangement allows free passage way underneath, the control for two furnaces being grouped together, the valve control for one furnace being at one end and for the other furnace at the opposite end, with the door control for the two furnaces located at the center of the girder.

A waste-heat boiler is installed at each furnace for utilizing the heat in

the waste gases from the furnace. Steam is developed at 225 pounds pressure, some of which is used in the gas producer plant for blowing the producers, and the remainder delivered to the main steam line, which passes down through the open-hearth building along the main columns back of the charging floor, connecting the boiler plant at the blast furnace with the engine at the blooming mill, so that this steam can be utilized either at the blooming mill or at the power house in case the mill is down.

Charging Open-Hearth Furnaces

For charging the open-hearth furnaces with scrap, ore and other materials, there are two 5-ton low-type Morgan charging machines with a span of 24½ feet for handling the charging boxes, which are run in from the stock house on a standard gage track in front of the furnace doors. Hot metal is brought in from the mixer building on a ladle car over a standard gage track, between the charging machine track and the main building column to a point opposite the furnace and is lifted by a 100-ton ladle crane. The latter has a span of 76 1/3 feet and is provided with a 25-ton auxiliary trolley for pouring.

The pouring floor is traversed by two tracks; the track nearest the furnaces is a through service track used for handling cinder, skulls, refuse, etc. The track near the outside column is used for spotting the ingot molds for pouring the steel. Two pouring platforms are provided alongside the building columns adjacent to this track and crossovers are provided between the pouring platforms so that the ingot trains may drawn out from either end as provision has been made for spotting ingot molds for two heats at each platform. Two 175-ton ladle cranes, each having a 40-ton auxiliary trolley, equipped with a 15-ton auxiliary hoist, are provided for handling the 120-ton steel ladles on the pouring side. Cinder pots of 260 cubic foot capacity are mounted on stands alongside the ladles when in pouring position to receive the overflow of cinder from the ladles. These details are shown in Fig. 2. The ingot molds are mounted for pouring in a double row on cars designed for carrying six molds and built by the Wheeling Mold and Foundry Co., Wheeling, W. Va. A 7½-ton jib crane, made by the Whiting Corp., Harvey, Ill., is attached to the building column at each furnace for handling the pouring spout.

The producer gas used in the open-hearth furnaces is supplied by a plant consisting of 21 mechanical producers equipped with automatic measuring feed and self-cleaning ash pans. The producers are arranged in batteries of six, three for each furnace, each battery being housed independently in a steel building 105 x 22 feet. The connection from the gas producers to the furnace flues is by means of overhead gas mains, three producers being separately connected to each furnace. The gas mains are insulated with a 2½-inch lining of insulating brick made by the Celite Products Co., New York.

Opposite each producer ample dust legs are provided which extend down to the foundation also serving as supports for the mains. The connection of the goose neck from the producer into the dust leg is so arranged that the gas is deflected downward before rising into the main. The reversal of direction throws down into the dust leg the greater part of the soot and dirt which comes over with the gas and has proved of material benefit in keeping the mains and flues free from these deposits.

The raw materials for charging the furnaces are brought from the stock yard, located in a covered steel building 103½ x 600 feet. At the north end of the stock house are located reinforced concrete bins for the storage of limestone, iron ore, dolomite, fluorspar, etc. These are built below the level of the stock house, permitting the unloading track to be carried over the top of the bins so that the material can be discharged from hopper bottom cars. The material is taken out of these bins by a grab bucket and loaded into charging boxes, mounted on the cars. The loading track also extends over the tops of the bins so that material, which spills over when being dumped from the bucket, falls back into the bin avoiding any labor in cleaning up. At the end of the building opposite the main storage bins are installed above floor level, concrete bins for the storage of chrome ore, magnesite, burnt dolomite, ferromanganese, etc. At one end of the bins is the crushing and grinding plant, consisting of an 8 foot wet grinding pan and a 10 x 16-inch crusher.

The building is served by two 10-ton cranes equipped with single hoists for handling 62-inch magnets built by the Cutler-Hammer Mfg. Co., Milwaukee. One crane is equipped with a 10-ton magnet trolley and a 10-ton bucket trolley mounted on the same bridge. The 2-cubic yard bucket was furnished by the Blaw-Knox Co., Pittsburgh. The cranes were built by the Champion Engineering Co., Kenton, O.

The pit furnace and rolling mill department is west of and parallel with the open-hearth building, being separated by a space of 105 feet. Crane runaways are provided on the outside of each building. The yard used for mold storage and the cooling and storage of ingot trains, is served by a 10-ton crane for handling molds and making up trains. The ingots coming from the open hearth are weighed on 200-ton platform track scale located north of the stripper building.

The six pit furnaces are of the four hole regenerative type, each hole 6¼ x 8 feet having a capacity of six ingots; the top of the pits is 7½ feet above yard level. The furnaces for their entire length on both the charging and drawing sides are bound with heavy cast-iron armor, extending below the floor level, for protecting the furnaces from damage by ingots falling on or against the sides. The brickwork for flues and checker chambers below yard level is protected from ground water by a concrete pan similar in construction to that employed at the open-hearth furnaces.

The pit furnace covers shown in Fig. 6, are operated mechanically and were especially designed to prevent water, due to leaks in packing or gaskets, from coming in contact with the furnace brickwork. They also are constructed to minimize warping or burning out due to heat from the pits, and damage to the brickwork around the top of the pit when closing. They were built by the Connellsville Foundry, Machine & Steel Casting Co., Connellsville, Pa.

Mill Layout Is Flexible

The rolling mill has been laid out to roll from 65,000 to 70,000 tons of ingots per month. Since a wide variety of product is required for the finishing mills of the company, it was necessary to make provisions for finishing the variety of sections without mill and guide changes, and to relieve the blooming mill of the necessity of rolling small sections.

Ordinarily a 3.8-ton, 22 x 24-inch ingot is reduced on the blooming mill to a 6 x 7-inch section in 15 passes. All slabs 3 x 12 inches and larger up to 36 inches wide and blooms up to 14 x 14 inches are rolled direct on the blooming mill, transferred to the right and sheared to gage in lengths from 18 inches to 15 feet on a 600-ton steam hydraulic shear, after which they are delivered mechanically to the slab yard for storage or shipment. The 6 x 7-inch section ,after being cropped, is delivered straight ahead to a 4-stand, 21-inch mill provided with three separate lines of passes into any one of which the operator can guide the piece at will by means of a motor driven switch. The center line of passes pro-

duces small slabs 3 x 12 inches and under, one line finishes 4 x 4-inch billets and the other line 2 x 8-inch sections for the sheet bar mill. The mill has a capacity of 100,000 tons per month of 4 x 4-inch billets and 8 x 2-inch slabs.

Small slabs and 4 x 4-inch billets are transferred to the right between the 21-inch mill and the sheet bar mill on a 600-ton electric billet shear, cut to gage from 18 inches to 15 feet and delivered mechanically to the slab yard on a separate conveyor parallel with the slab conveyor and so arranged that both conveyors can be used for material coming either from the slab shear or from the billet shear.

The 18-inch, 6-stand continuous sheet bar mill is designed to produce sheet bars 8 inches wide of any weight from 6 2/3 pounds to 46 pounds per foot and is designed to permit of rolling flats up to 15 inches wide. This mill also can be changed over to roll 1¼-inch squares and larger and will roll its range of billets from a 4 x 4-inch sections, its product of sheet bars from an 8 x 2-inch slab as delivered from the 21-inch mill, and has a capacity of 60,000 tons per month of 10-pound sheet bars or 1¼-inch billets.

Provision has been made for the future installation of a continuous mill paralleling the present sheet bar mill for the rolling of billets or other sections, this mill to be in line with the table leading at present to the billet shear, in which case both mills will be supplied by sections from the 21-inch mill and upon its installation the 18-inch mill would be relieved of the necessity for rolling billets, and would become strictly a sheet bar mill so that the various products could be rolled without any change in the setup of these mills.

The mill building proper, housing the blooming mill and the two continuous mills, is 70 x 720 feet with the engine house leanto on the east side side and a substation and motor house leanto extending the length of the mill building. A covered slab yard adjoins the mill building on the west side, making a continuous line, 1170 feet long, of buildings under roof, including the pit furnace and stripper building.

The crane equipment was furnished by the Champion Engineering Co., Kenton, O. The blooming and continuous mill building is served by a 30-ton crane with 15-ton auxiliary hoist and a 15-ton crane, the span of both being 66 feet. The engine house is covered by a 45-ton crane with 15-ton auxiliary, while over the substation and motor house leanto a 15-ton crane is used for general repair work and for handling rolls to the roll lathes which are located in this department. For handling slabs and billets in the slab yard, a 15-ton crane is provided for handling either magnet, chains or special lifting cradle for handling piles of slabs and billets from the conveyor. The sheet bar yard is served by a 15-ton double drum trolley crane equipped with a special lifting beam for sheet bar piles.

The blooming mill, manipulator, tables, shears, crop conveyor, pusher and equipment up to the 21-inch mill and up to and including the billet shears were furnished by the Mesta Machine Co., Pittsburgh, with the exception of the slab and billet conveyors which were built by the Treadwell Engineering Co., Easton, Pa. The continuous mills and drives, skew connecting table, broadside transfer and billet shear table, flying shear, piling, rolls, bar piler and the combination sheet bar and billet hot bed were furnished by the Morgan Construction Co., Worcester, Mass.

The blooming mill is a two-high reversing mill with rolls 36 inches in diameter by 92 inches long. The screwdown mechanism is of special construction, bevel gear driven, totally enclosed in dust tight cases, designed to allow ease of removal for renewal of wearing parts and is operated by two 100-horsepower motors, connected in series. A pinion housing with broad base is bolted direct to the foundation and contains two 40-inch pitch diameter pinions, 50-inch face with 16 double helical planned teeth. The mill spindles are steel forgings provided at both the roll and pinion ends with universal couplings. The top mill roll and spindle are hydraulically balanced by constant pressure furnished by an independent accumulator and with special hydraulic pullback arrangement provided on both the top and bottom spindles for ease in changing mill rolls, the spindles being manipulated without the use of blocking or the crane, leaving the crane free for handling the rolls. The mill is connected to the

FIG. 6—AN INTERIOR VIEW OF THE PIT FURNACE BUILDING SHOWING THE APPARATUS FOR OPERATING SOAKING PIT COVERS

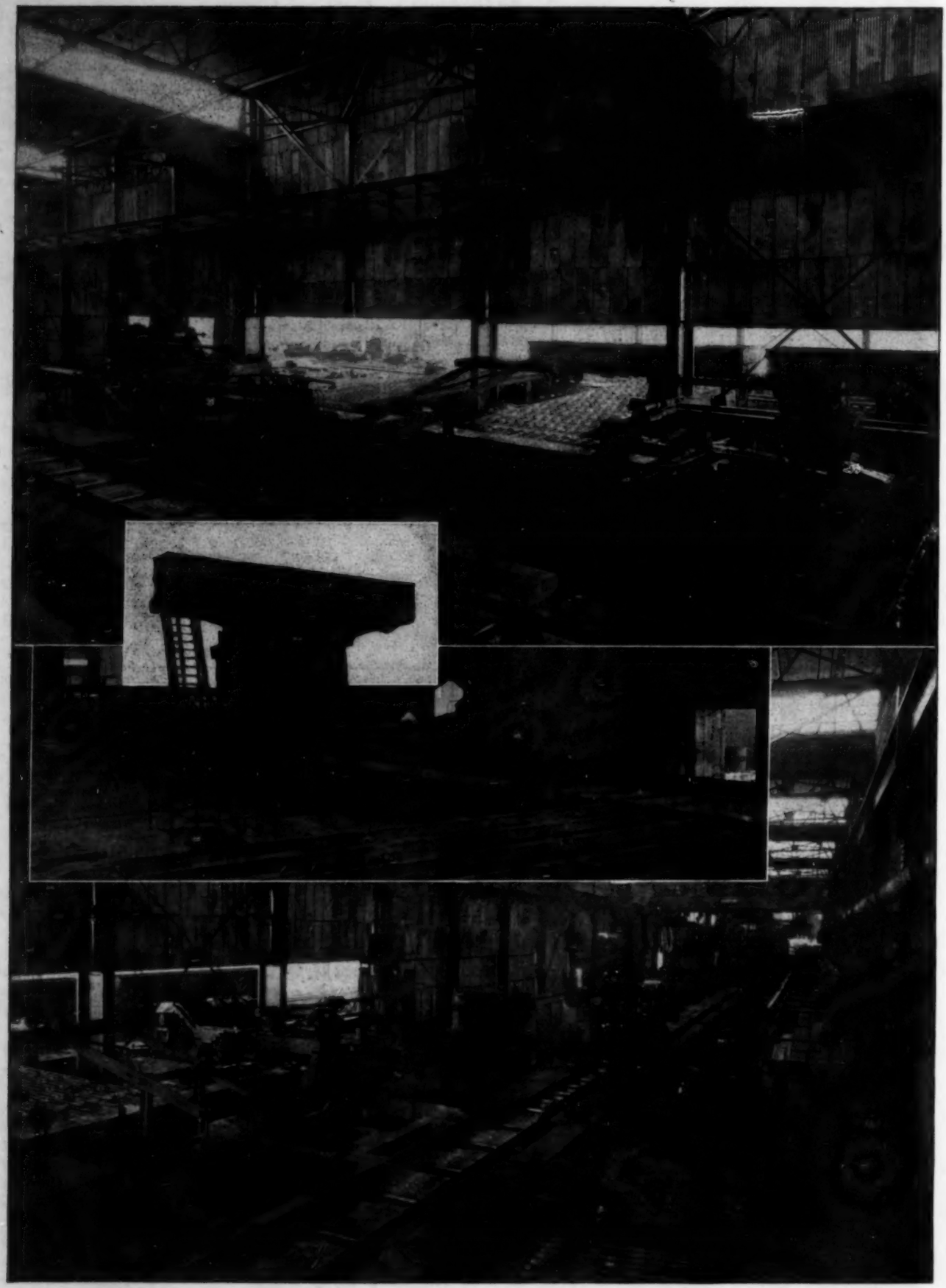

FIG. 7—SLAB AND BILLET CONVEYORS AND BILLET SHEARS. FIG. 8—VIEW OF THE SLAB AND CROP SHEARS, LOOKING ALONG THE RUNOUT TABLE TOWARD THE BLOOMING MILL. FIG. 9 (INSET)—VIEW OF TWO-HIGH REVERSING BLOOMING MILL. THE ROLLS ARE 36 X 92 INCHES

engine by means of a link type universal coupling so that the drive from engine to mill rolls is free from back lash, eliminating wear and tear on all parts of the mill and permitting greater speed of reversal.

The blooming mill approach table is 67 feet 6 inches long and extends back under the pit furnace crane so that ingots may be laid directly on the table from the pits in case of trouble with the ingot buggy. The manipulator is of the Hunt type, with side guards on each side of the mill and with special combination of turnings fingers and actuating levers of which there are three in number, mounted in conjunction with the side guard and rack beams on one side of the entering table for manipulating the ingot.

The crop and slab shear approach tables are 124 feet long to the center line of the shears, each containing 27 rollers. A transfer 30 feet wide and 115 feet long connects these tables for delivering blooms and slabs to the steam hydraulic shear. The 300-ton down cut crop shear is driven by a 75-horsepower alternating current motor and the clutch is equipped with a motor operated release. Slabs and blooms are cropped and cut to length on a 600-ton steam hydraulic down cut shear.

Charging Crop Ends

A specially designed chain and flight type crop conveyor receives the crop ends from both shears conveying them outside the mill building proper and delivering them into charging boxes mounted on the standard charging cars. To economize space in the slab yard and also to avoid excessive angle and drop at the discharge end of the crop conveyor, the crop car track is depressed below the slab yard level and extends back under the slab and billet conveyors.

The arrangement of the billet shear runout table is similar to the slab shear table except that the pullback and depressing features are omitted, a short tilting section hinged at the shear end and supported from the shear, being suitable to take care of the thinner product which is sheared at this point.

The blooming mill is driven by a 42 and 66 x 60-inch horizontal twin tandem compound reversing engine, built by the United Engineering & Foundry Co., Pittsburgh. The engine is built with four bearings with center cranks on both sides, the diameter of the main shaft being 28 inches. The engine is operated under a steam pressure of 210 pounds, the greater part being furnished by the waste-heat boilers at the open-hearth plant. The exhaust from the engine is connected to a 108-inch barometric condenser built by the United States Cast Iron Pipe & Foundry Co., Burlington, N. J.

The continuous roughing mill comprises four stands with 21 x 48-inch rolls, which are permanently set up with three lines of passes in them—the two outer pass lines to produce 4 x 4-inch billets and 8 x 2-inch slabs, the center line being a bullhead line capable of making slabs 3 inches thick and from 6 to 12 inches in width. For this purpose the mill will be supplied with slab sections having an approximate thickness of 7 inches and a width conforming to the desired width of the slab to be produced. To facilitate rolling slabs on this mill a set of 18-inch vertical edging rolls is installed between stands Nos. 2 and 3 to secure true and square edges on the slabs. This is of vital importance in their use in continuous heating furnaces to prevent their buckling when being pushed through the furnace.

The driving spindles of the mill are carried through the building partition wall into the motor house leanto which contains the bevel gear drive and the mill motor, which is a 4000-horsepower wound rotor motor, taking 6600-volt, 3-phase, 60-cycle current and having a full load speed of 93 revolutions per minute. This motor, built by the Westinghouse Electric & Mfg. Co., Pittsburgh, is of sufficient size to drive the two additional stands to be installed ahead of this mill in the future.

The 21-inch mill delivers to a skew connecting table from which material is transferred over a chain-operated rail type transfer to another table which delivers it to the billet shear.

The 16-inch continuous mill is a standard type combination sheet bar and billet mill, having six horizontal stands and two 16-inch vertical edging rolls. One of these rolls precedes the first pass and the other is located between the second and third pass, while directly in front of the mill is a mechanically operated preliminary crop shear for emergency purposes and to prevent trouble in case of bad ends which can be cropped before the piece enters the roll. The mill is provided for a duplicate set of housings, one set for sheet bar and the other set for billets, the housings to be lifted in and out of the mill by means of the overhead crane. The 16-inch vertical edging rolls are used to work the edges and control the width on sheet bars and are not used when making billets.

The mill is designed to roll sheet bars of any weight per foot and in width from 8 to a maximum of 15 inches and billets can be produced on the mill in sizes from 1½ to 3 inches square. When producing lighter sizes the material passes through all six stands of rolls, but when producing heavier sections, the pieces are finished farther back on the mill as required and pass idly through the remaining stands.

The roll turning department is located in the motor house between the drives for the continuous mills. The equipment consists of a 31-inch roll lathe for turning rolls for the 18 and 21-inch mills and a 42-inch lathe for turning the blooming mill rolls. The lathes are direct motor driven and were built by the A. Garrison Foundry Co., Pittsburgh.

At the opposite end of the motor house, adjacent to the blooming mill engine room is located the substation containing two 1500-kilowatt motor generator sets supplied by the General Electric Co., Schenectady, N. Y. The substation receives 6600-volt, 3-phase, 60-cycle current over a high tension line connected with the main power generating station at the blast furnace, and is converted by the motor generator set into 230-volt direct current for the requirements of all steel plant cranes, mill table drives, etc. All small motors throughout the plant for cranes, mill tables and auxiliary drives were furnished by the Westinghouse Electric & Mfg. Co., Pittsburgh, and the control equipment by the Cutler-Hammer Mfg. Co., Milwaukee.

Main Power Plant at Furnace

The main power plant located at the blast furnace supplies power for practically the entire plant with the exception of the steam furnished by the waste-heat boilers at the open hearth. The general arrangement of the steam, power and pumping plant to serve the ultimate requirements of the steel plant had been laid out when the blast furnace was built and where necessary provision had been made for extensions and the installation of equipment necessary for the steel plant.

Auxiliary shops are being provided for the maintenance and repair of equipment in the plant, including machine shop, blacksmith shop, pipe shop, storeroom and oil house. A 110 x 120 foot machine shop of brick and steel construction has been provided consisting of three aisles. This building also includes the electric repair shop, small stores and winding room.

For handling the incoming and outgoing materials, including interplant traffic, a railroad system consisting of about 25 miles of track has been constructed. The equipment includes three 80-ton locomotives, two 50-ton saddle tank locomotives, two special 100-ton flat cars for handling skulls from the open hearth and heavy material about the plant, and 265 standard hopper and gondola cars.

Getting Back to Normal Quickly

Business Paralysis Which Now Exists Finds Its Origin in Gross Misapplication of Basic Principles of Cost and in the Varied Computation of Prices—Method for Handling Accounts Outlined

BY C. E. KNOEPPEL

TO THE manufacturer who, only a few months ago turned away orders from his crowded plant and who today is limping along on part time operation with little new work in sight, Mr. Knoeppel's message has a marked appeal. He suggests a remedy for the present business paralysis. The remedy which is proposed constitutes more than an economic theory. It has been proved by actual practice in a number of manufacturing establishments and if universally followed would serve to level to a normal plane the price curves of commodities which at present swing too far through peaks and depressions. This article contains the substance of two addresses made by Mr. Knoeppel, who is president of C. E. Knoeppel, industrial engineers, New York. The first of these was at a joint meeting of the Chicago Society of Industrial Engineers with the Western Efficiency society, and the second at the session of the New York chapter of the National Association of Cost Accountants and Society of Industrial Engineers.

AMERICAN industry at the present time is operating at no greater than one-half of its full capacity. It should be operating at normal capacity and can do so quickly and successfully.

It is possible to reduce unemployment to minimum. Drastic wage cuts can be avoided. Industry can sell much more of its products than it is doing. Plants now idle can be operated, and those working on part time can increase their hours. The use of credit capital can be directed more safely and more surely than at present. Foreign trade can be greater than it is.

All of this may sound radical and utterly foolish.

However, analysis proves differently.

It is agreed generally that plenty of business lies ahead. In fact, the available statistics clearly indicate this. Our children need schools; our families need homes; our cities require new public buildings; our automobiles, trucks and farmers need roads; our railroads need repairs, new tracks, roadbeds and equipment; our public utilities need betterments and replacements; our furnaces and stoves require fuel; our people need shoes and clothing. In addition to all of this, the world needs food.

The present situation can be best expressed as follows:

No selling, no buying;
No buying, no making;
No making .....
Then what?

Falling sales and decreased production are causes leading to depression and business stagnation, resulting in unemployment, idle plants, high costs and heavy losses, which are inevitable unless we take constructive steps to get back to normal.

A well-known axiom of business holds that in periods of depression or reduced demand, costs of production are so high, that prices based on them will not secure the required amount of business to operate plants at possible capacity. As a result, costs are ignored, and prices go tumbling in the effort to stimulate the purchase of commodities, the basis of which is judgment based on fears of losing business, or going out of business, instead of a predetermined and scientific basis for determining and knowing what rock bottom prices should be.

Expansion Brings Low Cost

On the other hand, in periods of expansion, costs are low due to volume of production, purchasing in large quantities, and other reasons. Figures based on costs, result in prices less than the plants are able to get for their products. Again, costs are ignored and judgment forms the sole basis for prices. Both of these conditions seem to support the contention, so often advanced, that there is no relation between cost and price, and costs are not used as a basis for price making at all.

The actual procedure in price making unfortunately is based on such knowledge as may be available as to competition, demand, available supply, the financial situation, what the traffic will bear, or the low points necessary to book orders. The significant fact in connection with all of this is that at only one time in a business, is there a positive relation between costs and prices, and that is when a plant is operating at normal capacity. Even then, the margin of profit added to costs to make prices is many times a gamble as to how much can be added, and still not lose the business.

Here, then, are three important conclusions for the benefit of American industry, as a whole:—

If operating at normal capacity means prices which yield business why not determine and use prices which reflect normal capacity?

If, in times like this, judgment used in determining prices is based on fear instead of predetermined estimates, isn't it better to have scientific knowledge of what will secure business than to operate blindly?

If losses must be sustained to secure sufficient orders to remain in business, isn't it better to know how far these losses can go and for how long, without positive detriment to the plants?

These points raise this economic and vital question:

How far can industrial plants go below normal capacity and remain in business, and what is the point at which orders will begin to come in?

This, then determines the first fundamental principle of getting back to normal quickly:

1—*Determine the normal capacity of machines and working places by departments, in hours. This would be 75 per cent to 80 per cent of the possible, or 100 per cent, capacity.*

If, you assess all of the cost of operating a plant at one-half capacity, against the products produced by this reduced capacity, could you get prices

based on these figures? In other words, the proportion of overhead in a department or plant, to assess against production, should vary in the ratio of the capacity actually employed on production to the capacity that could be employed.

Would you assess all of the overhead of two plants on one plant, if one of the plants should stop work? If you buy a suit of clothes and find a hole burned in it, would you pay for two suits when you get the replacement? If material in an article costs a firm $10 and when you buy the article the material has increased to $15, should you pay the other $5 which the concern did not have to pay?

This, then, determines the second principle of getting back to normal quickly:

2—*Standardize overheads according to departments, with due consideration to reducing them where possible, determining what the rates would be at normal capacity.*

It is well-known that in industry, effectiveness varies directly in proportion to productivity, or to put it more simply as the work actually produced per hour approaches that which should be produced per hour, the greater the relative accomplishment. A worker getting 60 cents per hour, working 8 hours per day and producing 10 pieces per hour, is of much more value from an economic standpoint, than one working 10 hours per day, at 45 cents per hour, and producing 5 pieces per hour. The cost in the first case is 6 cents per piece, while in the second it is 9 cents, or 50 per cent higher.

Human Effort Is Purchased

What people buy when they purchase goods is not the physical things they see, but hours and minutes from president down to office boy. Time is the real investment in industry, and governs the cost directly.

Normal conditions require normal hourly outputs. Therefore, it is obvious that what should be produced must be known in order to determine currently the relative attainment.

Hence the third principle of getting back to normal quickly is:

3—*Determine from estimates, records of past performances, conferences, or by observations, what would be fair and attainable production standards per hour for the various operations, using normal capacity as a basis.*

Knowing the normal capacity for machines and working places, according to departments, having definite standards of the time which should be taken for the various operations to produce the units of product, and the basis for the fourth principle of getting back to normal quickly is determined:

4—*Determine quantities of the various combinations of products a plant can make at normal capacity.*

The estimated time it takes to do work now is a known factor; the current labor and material rates are known; the overhead rates have been standardized; the quantities of products which can be made, have been developed; all of which serve as a basis for the fifth principle of getting back to normal quickly:

5—*Determine for normal capacity the cost of the products which can be made.*

Inasmuch as the greatest volume of business goes to that concern whose prices reflect normal operating conditions, the matter of price making is next in order. In most cases at present, costs are too high to mean prices which include fair and reasonable profits. Plants are concerned with getting enough business to remain active. Salesmen are doing all in their power to make prices low enough to justify purchasing, the result being that present price making has as its basis, pessimism on the one hand, and fear on the other.

Firms know that in these times, losses must be sustained. The serious question to them is how much the losses will be, and how long they will last before an upward trend sets in. Some may be selling at a profit; but the majority can only be selling at, or below, cost to produce.

The curse of American industry is its unintelligent competition. Consumers, as a rule, are the only ones to benefit by the uneconomic and incorrect methods of costing and pricing in use by so many firms. There must be losses before we can get back to normal, and this generally is admitted as necessary. Then no logical argument exists against substituting for judgment and guesswork, some plan which will make losses a matter of intelligent, systematic and scientific determination. This must be done if business is going to get away from playing the business game, like the card player who bets before looking at his hand.

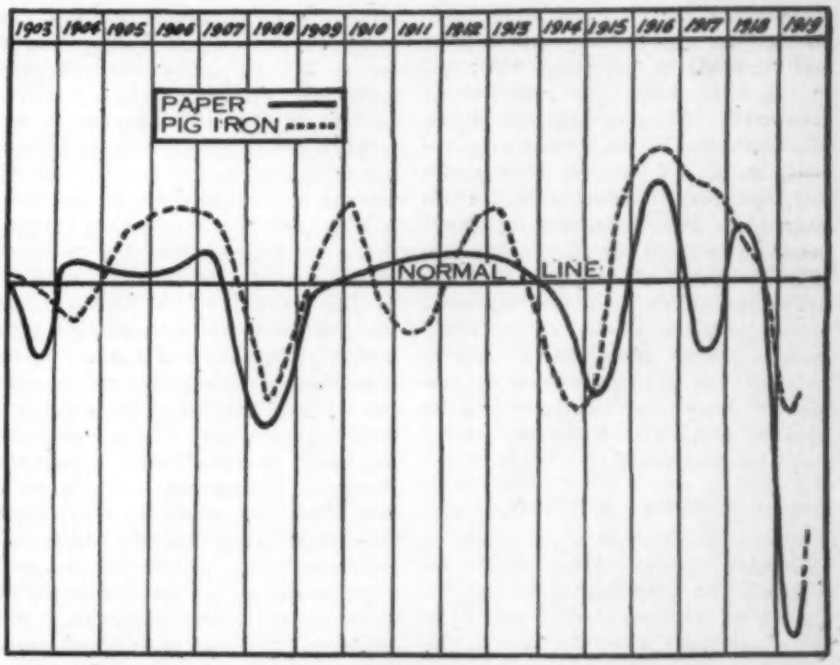

TABLE OF PRICE FLUCTUATIONS ABOVE AND BELOW NORMAL FOR THE PAST 17 YEARS IN TWO BASIC COMMODITIES

Substitute Knowledge for Guessing

At any rate, by observing the above principle, we would know what standard costs should be at normal capacity, through the use of standardized overheads, using time estimates for the various operations at current rates, and current prices for material. We know what actual costs are for the actual volume of work produced. We also know, or can ascertain, what costs have been at full capacity.

From such figures, charts may then be developed, showing costs at 60 per cent, 70 per cent, 80 per cent and 90 per cent of capacity, which will serve as the basis for the sixth principle of getting back to normal quickly:

6—*Determine prices which reflect normal conditions, using a normal profit as the factor to add to costs, in so doing.*

If you must go under this figure to

get business, you have at least the basis for knowing what is a normal price, and any deductions from normal prices then are made openly and with knowledge of the effect of so doing.

In this connection, the importance of considering relative complexity of work in determining prices is evident. Generally it is accepted that consumers should pay most for that which costs most to produce. For instance, three pieces of work may cost $1000 to produce. If 20 per cent is added to the cost for profit, the price in all cases is $1200. In one there may be $500 worth of labor and overhead; in the second, $400; and in the third, $300. No provision has been made for considering the degree of complication in this method of calculating price, and as time of workmen and equipment is the productive investment in business, a concern should get more in profit for the work taking $500 in labor and overhead, than the one taking $300; and this the price making method should reflect. This spells a smaller percentage of profit in materials and a much greater percentage of labor and overhead; this to vary in proportion to the increase of the labor and overhead.

Gambling on Futures

It may be said that selling goods on anticipated normal means *playing the market short.* My answer is that, inasmuch as you cannot sell goods at the prices you want to get for them at this time; inasmuch as you must pocket *some losses* until normal is again reached; inasmuch as prices based solely on pessimism and fear, may be ruinous in the end, why not play the market short willingly and knowingly, but *safely?* Therefore, why not, put these losses, due to the present business conditions, where they may be seen and analyzed, and use them as a guide for later decisions?

Hence the justification for the seventh principle of getting back to normal quickly:

7—Charge the difference between actual and standard overhead into an adjustment account, the balance of which can be carried at the end of the year, to profit and loss.

This charge will decrease as normal is approached and cease as it is attained. As normal is passed and possible capacity is exceeded, the total charges will be offset in whole or in part by credits to this adjustment account.

The time may come when the differences between actual cost of direct labor and what these costs should be, will be handled as outlined for overhead costs, but this is for the future to determine. At present, what has been outlined is advocated for the present, as many firms are successfully using the plan mentioned.

In carrying out the provision outlined the burden account would be charged with the actual expenditures; the work-in-process would be charged with the standard overhead; while the difference between standard and actual overheads would be charged to a *Burden Profits and Loss Account.*

In respect to materials of staple nature, such as pig iron, scrap iron, coal and coke, it also will be of value to use a *Material Adjustment Account,* which will exhibit the profit and loss, as between the purchase-price of material, and the price which is charged into the cost. For instance, if the average cost of pig iron as purchased is $35 per ton, and the market drops to $25 per ton, the cost records would be charged at the rate of $25 per ton on the tonnage used, the *Material Adjustment Account* being credited with the same figure. At the same time a second entry would credit the inventory account at the actual cost on the tonnage used, with a corresponding charge to the *Material Adjustment Accounts.* This would clear the actual cost from the inventory and would concentrate in the *Material Adjustment Account* the loss on the material used, enabling the cost to be figured on the basis of the *normal* condition which existed at the time material was used.

The adoption of the principles set forth will do more to stabilize industry, and keep it stabilized, than any other one thing, and my conviction is that labor is never going to be willing to do its share in turning out quantity production, and using labor-saving equipment until, through stabilization, we work normally in industry for longer periods, thereby reducing unemployment and the seasonal high and low peaks of demand for labor, as well as equipment and materials—all of which consitute another reason why these principles should be adopted.

At any rate waiting for prices to drop when prices are high, stifles demand to too great an extent; while buying too much when prices are low stimulates demand to too great an extent. In other words, unscientific buying in dull times, makes for false demand, and an unwarranted increase in production arises which like the "wash sale" on the stock exchange, puts prices on too high a basis. This in turn causes a stoppage in buying because of the high prices, resulting in an unwarranted decrease in production, forcing prices on too low a level. If we produced pig iron in dull times, we would not have an abnormally low price, and we would have pig iron in good times without the abnormally high prices.

Here is what happens in periods of depression or inactivity, or low price levels. Concerns stop producing materials. Not only are men thrown out of work, which is bad enough, but there are also losses to consider, due to idleness in the use of machinery, plant, materials and in money—a severe economic loss all along the line, all of which makes for high production costs. In periods of stimulation, over-activity and excessive demand, plants are run at full blast, to the detriment of the plants, while costs increase because of inefficiency, due to using labor not suited to the work, increased rejections, greater labor turnover, confusion, lack of co-ordination and other factors. In other words, whether producing in unusually slack times or unusually busy times, the conditions met make high costs. If productions were kept on a more normal basis throughout the year, we would avoid wide price ranges.

Avoid Peaks and Pits

Another factor must be considered in this connection. To have available the equipment and facilities necessary to produce in periods of expansion means that when normal is reached there is an idleness of these industrial facilities which increases as production drops.

To maintain the LEVIATHAN in idleness in New York Harbor, is costing this government $780,000 per year. What then must be the cost of idle machines, idle floor space, idle cars and locomotives, and idle men in industry at a time like this?

The question of storage and financing enters into this phase of the discussion, for it will require space and money, as well as knowledge of fundamental business conditions, to keep on manufacturing in periods of low demand. However, it can be done. If the manufacturers of pianos, jewelry, candy, shoes, underwear, socks, stockings, and clothing were to wait until the demand struck them before starting to produce, you can well imagine what we would have to pay for these products. However, what they do, is to produce as near to normal as possible throughout the year. Knowledge of sales conditions, financing and storage space, are provided.

What would happen if all the grain elevators and cold storage plants should suddenly burn? Or to put it another way what is to prevent us from handling basic commodities the same as the products we grow or raise and place in elevators and storage plants?

(To Be Concluded Next Week)

By-Product Industry Progresses

Improvements in the Design of By-Product Coke Ovens During the Last 40 Years Are Responsible for the Large Savings in Operating Costs—Comparison of Various Type Units and Subsidiary Equipment

BY A. THAU

THOUGH the first trials to recover the by-products of coke date back to 1856, when the Frenchmen Knab and Caryès, built experimental ovens, it was not until 1881 that A. Huessner, succeeded in introducing his first by-product coke oven on a working basis and so laid the stepping stone to an important and, as the war has shown, a vital industry. While the by-product coke industry is only about 40 years old, it is surprising to note what has been accomplished in comparatively so short a time, particularly with reference to efficiency and labor economy.

The initial development of the by-product coke oven is credited to the Otto Coke Oven Co., which formerly financed by-product plants. The company built the by-product plants at its own expense, with the privilege of collecting the by-products for 10 or 12 years and then turned the plant over as a present to the coke works owner. After it was demonstrated that the coke produced was as good as the fuel made by the nonby-product ovens and that there was nothing to risk but much to gain from a financial point of view, contracts stipulated the option to pay for the plant outright as soon as it had proved its workability and almost exclusively was the plant taken over within the optional time. This scheme largely has been responsible for the rapid development of the by-product oven and for the complete replacement of other oven types by the by-product ovens.

Development Was Slow

In England the prejudice against by-product coke was so great that even the effectively demonstrated financial advantages, which paved the way in European countries, failed to create a by-product coke industry worth mentioning. Except for a few plants here and there, a noticeable development set in only about 15 years ago. In the United States the real development can be traced back to a still more recent date. The result of this development over varying periods of time in the different countries becomes evident by the fact that in Europe the majority of the by-product coking plants are getting rapidly out of date. England, however, had the advantage of avoiding the mistakes made on the Continent, while America profited by the outcome of the development of the two preceding stages. The most modern advancements in the by-product coking industry are found in the United States, England and lastly European countries with the greatest by-product coke oven industry of all.

Adaptability Is Uncertain

The statement that in the development of an industry like the by-product coke works one country profits from the developments made in another, has been contradicted on the ground that what must be considered a development in one country may not be adoptable in another. In other words a new development in coke-oven construction in the United States, may not suit a plant on the European Continent or vice versa. Exception is taken to this option on the ground that every industry can benefit by the achievements of others by making certain modifications to suit the particular all round working methods. This can be accomplished in most any country without great difficulties.

In reviewing the development of the by-product coke oven plants relative to labor economy the most marked is the development of the oven construction. The length and height of the retorts have been increased gradually while the width has been decreased to reduce the coking time. Taking into account that the capacity of the ovens has thus been increased by fully 100 per cent and the same amount of work is required to fill and discharge an oven of the old or of the latest type, it follows that the labor efficiency directly connected with handling the ovens has also increased by 100 per cent. With the longer retort, the number of charging holes has been increased from three to four, facilitating the charging and leveling, but the most remarkable progress has been made in the construction of the combustion chambers which heat the retorts from both sides. Silica bricks were used first in the United States for flues and retort walls to stand the high temperature and pressure incident to coking. With the old so-called waste-heat oven giving off surplus heat from their chimney flue gases, about 10 to 12 per cent of the surplus gas could be recovered. It is due to the efforts of Koppers and the success which followed, by the introduction of his generator oven that the whole coke oven practice was reformed. This success was due to the fact that the surplus energy obtained as live gas, proved more flexible in its application than the recovered energy obtained as steam, generated by waste heat in immediate proximity to the oven battery with the impossibility of any storage. A still greater step was taken in the development of heating the retorts, when Koppers modified his regenerator oven to allow the retorts to be heated with blast furnace or producer gas, thereby yielding the whole production of coal gas for more useful purposes. Of this possibility large and medium size gas works as well as iron and steel works have taken advantage with marked success.

Early Methods of Heating Ovens

Heating a coke oven with 40 per cent of the generated gas, or heating with blast furnace or producer gas was an important achievement. The first battery of by-product coke ovens built by Hussener in 1881, used not only all the by-product gas produced for heating purposes but in addition were heated by coke fires for which provision was made in a flue, open at one end and arranged under the sole of the retort.

The introduction of the regenerative coke oven was timely in that the progress in the construction of large gas engines was far advanced. The introduction of an oven capable of being heated with a gas low in calorific value was so marked and rapidly taken up, that many coke-oven builders followed on the same lines in the design of their coke ovens, though there had been the Otto-Hoffmann oven many years before as the first coke oven utilizing sets of Siemens' regenerators and supplying surplus energy in the form of live gas. This latter oven, however had been superseded by the waste heat ovens, which were built exclusively before the introduc-

The author, A. Thau, is superintendent of the coke and chemical plants of the Oxelosund's Iron Works, Oxelosund, Sweden.

tion of the Koppers' regenerator oven.

Inasmuch as the same amount of labor is required to fill and discharge an oven containing 5 or 10 tons of coke, the oven with the larger capacity from a labor saving standpoint certainly is more economical. Formerly the ovens were charged by small hopper cars which were pushed manually over the ovens; they now are charged almost exclusively by an electrically driven charging car of equal capacity to the retorts. The cars are filled, emptied and mechanically operated by one man. The charging of compressed coal originates from trials made to carbonize a fuel rich in volatile matter but not binding in the heat to large lumps of coke. The coal was filled in wooden boxes, compressed by hand with stampers, the boxes set into the oven one on top of the other to the height of the retort and then pushed against the coke bench side door by the pushing ram. Then a second, third and so many more rows of boxes were charged the same way until the oven was filled. By these trials a satisfactory way was found to cause binding coal to yield a satisfactory coke.

Development of Charging Systems

The gradually filled-in coal was compressed with the head of the pushing ram against the tightly set and securely fastened bench side oven doors. This crude charging system soon proved ruinous to the brickwork of the ovens. The next step was to provide an oven-shaped box traveling on the same rails of and beside the pushing ram. It had a movable bottom geared with rack and pinion. The coal cake compressed by hand with iron stampers was transferred on this bottom into the oven. The door on the machine side was then lowered, securely fastened and the bottom or "peel" withdrawn. The next step that followed, was the electrically driven double compressor and a combination of the charging machine and the pushing ram.

It soon became evident that only coals containing at least 28 per cent of volatile matter could be treated in that way and even then not always to their advantage, that a coal with lower volatile matter would swell in the ovens in excess of its reduction of volume by the loss of gas and that it was mostly impossible to push the coke out especially where the side walls of the ovens were bent by the expansion of the charge. But even on plants with a richer coal the compressing arrangements could not hold their own for many reasons and are nowadays only applied where a badly binding coking coal is coked and a satisfactory grade of coke cannot be obtained without the aid of compressing the coal. As a labor economizing appliance the arrangements are costly to keep in repairs and are too much dependent upon many different factors of which the proper physical condition of the coking coal is probably the most important.

The collecting main formerly was built in the center of the ovens and the gas off-take through the ascension pipe near the center of the retort arch. The Otto-Hoffmann ovens formerly were built with two ascension pipes and two parallel collecting mains to shorten the passage of the gas inside the ovens and thus avoid a decomposition by the heat. The collecting main with the ascension pipes usually is placed on to the machine side of the oven, thus leaving the oven tops free for the charging lorry to travel. By placing the collecting main on the machine end of the ovens, it was somewhat awkward to find room for the door lifting winch which traveled on narrow gage rails laid on top of the ovens at their extreme ends. A great improvement was made by Koppers in doing away with the ordinary coke oven door on the machine side and providing a horizontally moved stopper door just large enough to allow the pushing ram head to enter the ovens. Above this door a separate cast-iron hinged door with machined self-sealing faces is arranged, large enough for the leveling rod to enter the oven. The stopper door is handled by a swing crane built on to the frame work of the pushing machine. The door is first withdrawn horizontally and then either moved sideways or upward in the direction of a horizontal or vertical circle respectively. The attention which these stopper doors together with the self-sealing leveling doors require, is so much less compared with the former full-sized doors that one door man can open, close, and loot them without any assistance.

The coke pushing machines have been improved mechanically and generally strengthened to cope with the heavy charges which they now have to push. Steady progress has been made in the development of the mechanical leveler, which is mounted on the pushing machines, driven from the same motor and attended to by the same machine man, thus saving two men who formerly were required for leveling by hand and avoiding the former waste of gas and by-products during the time required for hand leveling.

At old style plants a flat coke bench about 50 feet long is provided in front of the ovens, arranged with a slight incline so that the excess quenching water applied to the coke will be drained and collected in settling ponds. These coke benches form the majority on the coking plants of the European Continent. In England they are only found on few plants of older design. The inclined bench offers in addition to labor economy many advantages over the flat type in that the coke in falling spreads itself out immediately and can be quenched by one man, while on a flat bench at least four men are required who have to drag the coke apart to enable a thorough quenching without overwatering it. The provision of an inclined bench arranged to load the coke by hand into the cars proves costly in that extensive substructures are required to raise the whole battery to provide sufficent distance between the oven soles and the car tops for a sufficiently long inclined bench.

Coke Appearance Aids Sale

While hand loading and mechanical coke loading arrangements are about equally divided over the plants in England, in the United States mechanical coke quenching and loading is almost exclusively in use. In England the introduction of the by-product coke met with prejudice compared with the beehive coke. Efforts were made to obtain beehive coke with a silver-glossy appearance and it was much easier to sell an inferior coke of good appearance than a good quality coke of somewhat doubtful appearance. To copy the method of quenching of beehive coke, Darby of the Semet-Solvay Co. developed a quenching hood which consisted of a web of perforated pipes in the oven section, the web being connected to the quenching water main. The hood is placed in front of the oven mouth and the coke pushed through. It is applied on the majority of English plants and serves its purpose effectively. Approximately 9 minutes are required to push the coke from the oven onto an inclined bench or car with a sloped bottom. From the former it either is hand-loaded or slides onto a conveying belt which transfers it to a screening and loading station. The coke is pushed from the car onto an inclined bar screen and when cool it is loaded into railroad cars. The quenching hood after a few preliminary trials in the United States as well as on the Continent was discarded. Its present use in England, however, is due to smaller batteries and ovens as compared with elsewhere. In the working of a small plant the time of pushing the coke is of little importance.

As regards mechanical quenching and loading, the coke is pushed from the

ovens at full speed into a Talbot-type car which transfers it to a quenching station where a measured amount of water is turned on. The coke is deposited on an inclined bench from which it slides on to a conveying belt, serving the screening and loading station. This arrangement inovated by Koppers and now widely adopted in the United States is beginning to be used by continental plants.

The labor economy with such an arrangement is large inasmuch only three men per shift are required to deal with the coke from 200 ovens and any desired contents of moisture in the coke can be obtained by adjusting the amount of water used for quenching each charge accordingly, depending upon the time during which the water is allowed to fall on it.

In regulating combustion no labor economy is possible since only one man is in charge of a battery. The half hourly changing over of gas, air, and draft by reversing cocks, slides, and dampers is done automatically by a small electric motor which is started and stopped at the proper moment by a reliable clock making or breaking an electric contact at certain, adjustable intervals.

Removing Carbon Deposits

When coking rich coal, the first condensation of the gas takes place in the ascension pipes where tar is deposited on the inner surfaces. This tar on account of the heat of the passing gas, gradually is volatilized during the later stages of the coking period so that only a carbon deposit remains which increasing gradually but continually, reduces the internal passage for the gas. Since iron has a greater expansion coefficient than carbon, the iron pipe getting much cooler than the inner carbon deposit, tightly compresses the carbon. The thick layers are difficult to remove and account for the erroneous opinion, frequently expressed, that the carbon combines homogenously with the cast-iron surface. A great improvement in such cases are ascension pipes, which were introduced by the writer.

This ascension pipe is made of several short flanged pieces, preferably not much longer than 40 inches each. Each pipe is made in two sections with vertical flanges and held together by four bolts. When putting the whole ascension pipe together the top piece must have its vertical flanges parallel to the collecting main, the next one right angle to the top piece and so on. By this means any tendency to crack or break, is avoided. In cleaning the pipes, the bolts are removed from one section and a piece of wire rope inserted in two of the flange bolt holes and tied thus serving as a hinge. The particular half of the section now is swung open like a door and it will be found that the carbon can be removed easily with a hammer. The pipes can be made of wrought iron or steel plates as well as of cast iron and in the latter case need not even be machined if the faces are fairly clean cast and chipped.

In keeping the bottoms of the collecting and conducting mains clean of soft pitch deposits no improvements or alterations have been made. Except for flushing the mains with tar, manual labor usually is employed for scraping the bottom of the mains and withdrawing the pitch at a convenient spot. Compared with the plants of older design, the development of the by-product plants as far as the ammonia recovery goes, is most marked by the introduction of the direct recovery introduction of the direct recovery process. The plant itself has been simplified considerably; its yield has improved while a slight labor economy has been effected. The majority of the apparatus are placed on the same floor as the exhausters with the one man in charge.

On the old indirect working plants in which the gas was cooled as near as possible to atmospheric temperature, extracting the tar was comparatively easy. On the direct recovery plants the extraction of tar from a partially cooled gas has become of primary importance as the last traces of tar must of removed to avoid discoloring the sulphate. A variety of different types of tar extractors has been introduced in recent years with more or less success. A series of articles dealing with tar extraction were presented in the July 1, July 22, Aug. 19, Nov. 11 and Dec. 19, 1920 issues of THE IRON TRADE REVIEW.

Gas exhausters are still of the same type as formerly but are built for the higher pressure by which the gas is forced through an acid bath, on direct recovery plants. Blowers, blade exhausters and turbo exhausters coupled direct to an electric motor or a steam turbine have come in favor and have had an effective influence upon the extraction of tar while the gas is propelled without pulsations. Exhausters of the blowing engine type now are rarely applied.

In sulphate of ammonia plants before the introduction of the direct recovery process, a marked development in design could be noted. The construction of the saturator was improved by raising it high up in the building and providing a funnel-shaped tapered bottom with a valve through which the salt was withdrawn at intervals. Such saturators still are working at many plants in England. The next improvement was made in the design of the ammonia stills the columns of which were gradually increased in diameter and these now are built in units to cope with 200 tons or more a day, thereby increasing their efficiency and economy and reducing the steam consumption considerably at the same time. Then Wilton of London, brought out his totally enclosed, continuous working saturator so that one still and one saturator could be made of a capacity to deal with the ammonia recovered at large size plants. The form of this saturator practically has been retained and adapted to the direct recovery plants, while the automatic working of the bath has been adapted on almost exactly the same lines.

To make the work in connection with the saturators still more independent from the attention of the men in charge, the Riter-Conley Mfg. Co., Pittsburgh has brought out an automatically working sulphate plant in which electrical equipment maintains the level and strength of the bath the salt being continually discharged and washed at the same time. The improvements in the building of benzol plants apparently are slight, although a much higher degree of efficiency with practically no waste has been reached.

Cleaning Gas for Combustion Purposes

If the surplus gas is used in gas engines or for domestic purposes it must be purified by conducting it through oxide purifiers of which the most economical types are copied from gas works practice. For large plants a mechanical arrangement is provided to throw the used oxide over and over several times a day to facilitate its regeneration otherwise an extra man will be necessary in charge of the purifying plant. With mechanical regeneration the scrubber man can take care of the purifiers and extra labor is occasionally called in at piece rate to change the filling of the boxes.

Particular progress has been made with regard to an automatic control of the working of every single apparatus, before and after which a pressure gage is connected up. While pressure gages formerly were placed close to the particular apparatus, in recent years, they have been connected to a central gage board, generally placed in the exhauster house so that one can overlook the working of the whole plant at a glance.

After having so briefly reviewed what in the comparatively few years of development has been achieved, it will be interesting to shortly dwell upon the progress the near future is prob-

(Concluded on Page 703)

Exporting Iron and Steel

Materials Must Be Adapted to the Requirements of the Foreign Markets —Different Methods of Doing Business Result in Varied Demands

VII—Foreign Specifications

BY V. G. IDEN

ONE of the prime essentials to success in the business of exporting iron and steel is the ability to judge what the foreign customer wants. American materials are not so well known in the markets of the world that it is always easy to judge with accuracy that the nomenclature used by a prospective customer means according to common American usage exactly what the purchaser has in mind. For instance, it has been discovered that many clients in South America will specify iron bars whereas it is not the iron bar of the kind produced in the United States and the kind sold to consumers in the United States that the South American wants. When iron bars are inquired for by such a foreign customer it is the practice to quote him on steel bars. This discrepancy in market practice is reputed to be the result of German influence in South America. What the South American actually desires is a soft bar, but a steel bar nevertheless. Why the German exporters should have influenced the South American trade into accepting such bars as iron bars has not been adequately explained. It can be set down only as one of the methods of international trade competition which was practiced by that class of salesmen.

Bergen, the greatest commercial port of Norway

The export trade is found to be honeycombed with just such trade practices, and it therefore becomes that much more difficult. The greater percentage of these practices are the direct result of trade customs introduced by other persons and evidently put forth for the purpose of insuring a trade, once it is established, to those who developed it. It has been discovered, for example, that the South American ranchman prefers high tensile oval wire to the normal round wire which is drawn and sold commonly in the United States. Such a wire is more expensive than the wire North American farmers use, but no substitution will be accepted on the South American farms. It is understood this oval wire is another result of German sales practice. By getting into the field early, the German producers persuaded the South American farmers that their wire, being oval in shape rather than round, can be seen much more readily by live-stock and therefore it makes a better fencing. This superstition has become so deeply engrafted in South American usage that some American mills have altered their practices and begun to manufacture the same wire in order to catch this trade. The American Steel & Wire Co., has developed a quality of galvanized oval fencing wire, made from high carbon steel which possesses a much greater tensile strength than any of the ordinary grades of round galvanized wire generally used for fencing purposes. This was designed to meet the requirements of particular foreign demands. It is claimed for this wire that it is not affected by expansion and contraction due to variations in temperature to the same extent as the ordinary grades of galvanized wire. The superior galvanizing renders thi• quality of wire particularly suitable for use where the fencing is exposed to unusually trying atmospheric conditions, such as exist, for instance, in proximity to salt water.

Dr. Romulo S. Naon, ambassador from Argentina, undoubtedly had in mind such discrepancies in specifications between the countries when he said in an interview:

"The American exporter usually takes the position that his products must be accepted abroad under the same conditions that prevail in the domestic market. He wishes to dictate styles, quality and conditions of payment. There is not the least trace of co-operation between buyer and seller in such a procedure.

"Undoubtedly, had all American exporters of iron and steel been intimately acquainted with the variations in specifications, one branch of the

industry would at least have escaped such an indictment. But it is known that many shipments of American iron products have been rejected in South American ports because they did not meet with the requirements of the purchaser.

"There are wholesale complaints," said Dr. Naon, "that the American exporter is not as scrupulous in his attention to orders as should be the case in a well-organized foreign business. It has frequently happened that an order calling for certain styles and qualities have been filled by goods of different and inferior kind, even when advance payment has been made in Buenos Aires."

That is a criticism aimed at American practices from the outside. It might be claimed that the criticism is unjust, although it does not remove the fact that a mistake has been made by some one. Just because American exporters are ignorant of the practices of a customer is no reason to plead extenuating circumstances. That does not make trade. It does not make satisfied customers and without satisfied customers continued trading is impossible. If American producers are intent upon selling their products to foreign customers they must first make certain what kind of goods those customers desire and not attempt to interpret a cable or a mail inquiry into a literal American translation.

Use Our Southern No. 2

When selling to Europe the case is different; Europe being a steel producing country the trade there is well versed in their technical needs and will make those needs specifically known. The English industry, for instance, has a very well established practice of branding their pig iron. In the United States it is commonly the practice to sell pig iron according to chemical analysis. When England came into the American market for pig iron it was found that it was the Southern No. 2 grade that seemed to be preferred. There is no absolute comparison between that and any pig iron produced in England although that particular iron apparently most nearly met the major requirements of the English. This particular grade of iron also seems to be preferred by Italy.

South America, before the Great War, purchased its major needs of pig iron in Europe. England sold great quantities there. For one thing it must be remembered that England makes little charcoal iron. In the first place England does not possess the forests to supply her with the necessary charcoal. Canvassing the markets in South America it has been discovered that three British brands of pig iron seem to be most popular. There are no exact equivalents of these grades in the United States. As a general thing it has been found that the American Southern No. 2 will meet the requirements.

The correspondent of *La Nacion* in the United States has recited a number of cases where it has been made to appear that American business men deliberately have substituted goods for those ordered. These cases may appear extreme but they only accent the need for American exporters to study carefully the requirements of foreign purchasers. One was the case of a dealer in South America who ordered summer weight clothing in the United States, only to receive heavy weight clothing in the shipment. In this instance some official in the American factory deliberately changed the order because he thought the seasons in South America corresponded with the seasons in the United States and it was then time to begin shipping winter clothing to the trade.

The South American and the foreign customer generally is so scrupulous about the kind of goods he wants that too great care in filling the orders cannot be practiced. The South American is even particular that the trademark, if the goods in the order are trademarked, shall be identical

TUBOS PARA VAPOR, PINTADOS DE ROJO

ROSCA INGLESA

Las Dimensiones y Pesos consignados son Nominales o Teóricos

Diámetro Interior Nominal		Diámetro Exterior		Peso		Número de Filetes		
Pulgs.	mm	Pulgs.	mm	Libras por Pie	Kilos por Metro	Por Pulgada	Por Cm.	
⅛	3.17	0.406	10.31	0.33	0.491	28	11.02	Precios a Solicitud
¼	6.35	.531	13.49	.44	.655	19	7.48	
⅜	9.52	.687	17.45	.67	.997	19	7.48	
½	12.70	.844	21.44	.94	1.399	14	5.52	
¾	19.05	1.062	26.97	1.48	2.202	14	5.52	
1	25.40	1.344	34.14	2.03	3.021	11	4.33	
1¼	31.75	1.687	42.85	2.92	4.345	11	4.33	
1½	38.10	1.906	48.41	3.56	5.298	11	4.33	
1¾	44.45	2.156	54.76	4.26	6.340	11	4.33	
2	50.80	2.375	60.32	4.83	7.188	11	4.33	
2½	63.50	3.	76.20	6.29	9.360	11	4.33	
3	76.20	3.5	88.90	7.40	11.012	11	4.33	
3½	88.90	4.	101.60	8.50	12.650	11	4.33	
4	101.60	4.5	114.30	9.60	14.287	11	4.33	
4½	114.30	5.	127.00	12.80	19.049	11	4.33	
5	127.00	5.5	139.70	14.20	21.132	11	4.33	
6	152.40	6.5	165.10	17.04	25.359	11	4.33	

Debe admitirse una tolerancia de 5 por ciento (en más o en menos) en el peso.

Se suministran roscados y con acoplamientos en longitudes corrientes de 18 a 22 pies (5.49 a 6.71 metros) a menos que se indique de otro modo.

Por cortar en longitudes especificadas se hará un recargo sobre el precio de los tubos en longitudes corrientes.

Por alisar el interior de los tubos se hará un recargo sobre el precio de los tubos corrientes.

SPECIFICATIONS FOR ENGLISH GAS PIPE, FROM A CATALOG IN SPANISH ISSUED BY AN AMERICAN EXPORTER

on each article in the shipment. An incident was known when an important American firm shipped some tin plate to Argentina. This tin plate was all of the same weight and dimensions and for all purposes each sheet was identical. But it had been purchased from different mills in the United States and therefore the shipment bore the various marks of the mills making it. The South American client was so incensed at what exporters offers no difficult problem. But on the Argentine ranges the use of what is known as Australian sheets is an important item. These sheets are used to line drinking troughs for live-stock. It is used for the same purpose on the ranches in Australia from which place the practice was introduced into South America. Australian sheets are corrugated, there being a special number of corrugations to each piece hold to that point of view it will be a serious obstacle to trade advancement. It may be only too true that some of the specifications are the result of personal peculiarities but they are not insurmountable. Many of them have been established in the foreign markets by producers in other parts of the world who sought this trade before American producers had any mind to go after the business. On the other hand there are many

AMERICAN SOCIETY FOR TESTING MATERIALS,

PHILADELPHIA, PA., U. S. A.

AFFILIATED WITH THE

INTERNATIONAL ASSOCIATION FOR TESTING MATERIALS.

STANDARD SPECIFICATIONS

FOR

STRUCTURAL STEEL FOR BRIDGES.

ADOPTED 1901, REVISED, 1905, 1909, 1913, 1914, 1915, 1916.

Serial Designation: A 7-16.

The specifications for this material are issued under the fixed designation A 7; the final number indicates the year of original issue or, in the case of revision, the year of last revision.

NOTE.—In view of the abnormal difficulty in obtaining materials in time of war, the rejection limits for sulphur in all steels and for phosphorus in acid steels shall be raised 0.01 per cent above the values given in these specifications. This shall be effective during the period of the war and until otherwise ordered by the Society.

Steel castings.

1. The Standard Specifications for Steel Castings, adopted by the American Society for Testing Materials, shall govern the purchase of steel castings for bridges. Unless otherwise specified, Class B castings, medium grade, shall be used.

I. MANUFACTURE.

Process.

2. The steel shall be made by the open-hearth process.

II. CHEMICAL PROPERTIES AND TESTS.

Chemical composition.

3. The steel shall conform to the following requirements as to chemical composition:

		Structural steel.	Rivet steel.
Phosphorus	Acid, not over	0.06 per cent	0.04 per cent
	Basic, do.	0.04 per cent	0.04 per cent
Sulphur, do.		0.05 per cent	0.045 per cent

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SOCIEDAD AMERICANA *de* ENSAYOS *de* MATERIALES,

FILADELFIA, ESTADOS UNIDOS.

AFILIADA CON LA

ASOCIACIÓN INTERNACIONAL DE ENSAYOS DE MATERIALES.

PLIEGO DE CONDICIONES NORMALES

PARA

ACERO DE CONSTRUCCIONES PARA PUENTES.

ADOPTADO EN 1901: CORREGIDO EN 1905, 1909, 1913, 1914, 1915, 1916.

Título de referencia: A 7-16.

Este pliego de condiciones se publica bajo el título de referencia A 7, seguido de un número que indica el año de su primera publicación o, si se ha corregido, el de la última corrección.

NOTA.—A causa de la gran dificultad en obtener materiales en tiempo de guerra, los límites de rechazo para el azufre en todos aceros y para el fósforo en los aceros ácidos se harán 0.01 por ciento más que los valores dados en estos pliegos de condiciones. Esto se aplicará durante la duración de la guerra y hasta que la sociedad disponga otra cosa.

Piezas fundidas.

1. La compra de piezas fundidas de acero para puentes se hará de acuerdo con el Pliego de condiciones normales para piezas fundidas de acero adoptado por la Sociedad Americana de Ensayos de Materiales. A no disponerse otra cosa, se emplearán piezas fundidas de la clase B, de acero dulce.

I. FABRICACIÓN.

Procedimiento.

2. El acero se hará por el procedimiento Siemens-Martín.

II. PROPIEDADES QUÍMICAS Y ANÁLISIS CORRESPONDIENTES.

Composición química.

3. El acero llenará los siguientes requisitos en cuanto a composición química:

		Acero de construcciones.	Acero de remaches.
Fósforo	Ácido, no más de	0.06 por ciento	0.04 por ciento
	Básico, no más de	0.04 por ciento	0.04 por ciento
Azufre, no más de		0.05 por ciento	0.045 por ciento

* Las unidades (pulgadas, libras, etc.) empleadas aquí no pertenecientes al sistema métrico son unidades inglesas.—EL TRADUCTOR.

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A PAGE FROM THE STANDARD SPECIFICATIONS FOR STRUCTURAL STEEL FOR BRIDGES DISTRIBUTED IN SPANISH SPEAKING COUNTRIES BY THE BUREAU OF STANDARDS, WASHINGTON, D. C.

he supposed to be a difference in the goods received and that ordered that it was difficult and expensive to persuade him the shipment was proper.

Some of the foreign specifications which appear so peculiar to American producers and salesmen are due to the practices of the European industry. For instance, English pipe, with English screw threads, has been so long in use in many foreign markets that it would be unwise for an American to attempt to sell anything else there. English pipe today is well understood by American producers and its procurement by and the latter is of a particular size. Custom among the consumers of material is, after all, the deciding factor as to what the manufacturing specifications shall be. The intolerance of foreign buyers to substitutes, even where the latter may give him a better article, is a condition in foreign trade which cannot be changed. The only alternative therefore, is for the American exporter to be scrupulous in exercising care in filling an order.

There is a tendency to look upon foreign specifications as evidence of eccentricities. So long as American exporters and American producers eccentricities of individuals in the foreign market which must be kept well in mind. These can be learned and understood only after a period of trading with these individuals.

Bamboo steel is a tool steel which finds a market extensively in China, Japan, the Philippine Islands and the Dutch East Indies. It is also a marketable staple in India. It is used for a large variety of purposes, including the making of wood-working tools, razors, harvesting knives for hemp, tobacco, sugar cane, etc., and other implements. It has ridges at fixed intervals along its length,

and this peculiarity lends it the name "bamboo." According to tradition this particular steel was introduced in India by the Germans. The first consignment consisted of bars made on a broken roll, the breaks in the roll causing the ridges on the bars which gave them a "bamboo" form. When sold to the natives it proved particularly adaptable for the purposes for which it was used with the consequence that only bamboo steel now can be sold these people for making their small tools. While carrying a distinctive name and made for particular foreign markets, bamboo steel is nothing more than a medium grade of tool steel.

The export market also embraces a demand for British standard tubular poles. These are used for electric tramways, electric lighting, telegraph, telephone and power transmission service. The British tramway pole is 31 feet long, the standard permitting no other length.

Some Chinese customers, whose accounts many a mill would like to handle, have the habit of making their inquiries in a peculiar form. One Chinese merchant has a booklet of specifications which he mails to the United States to the agent whom he wishes to have make his purchases. This booklet contains no more than a grouping of certain materials against which a stipulated quantity is noted. Group A, for instance, may call for 100 kegs of nails, 5 tons of No. 7 gage bars, and 50 tons of scrap. Group B may specify the same materials but in different quantities. Group C will specify an entirely different assortment of materials. From a cursory study of these groups no rhyme or reason can be found for them to the Occidental minds, but evidently the Chinaman knows exactly what he wants. When he has a desire to make a purchase in the United States he will cable for a price on A, or B, or C, as the case may be. That practice of making purchases may appear to be eccentric in the extreme but it would be unwise for an American, desiring to consummate a sale, to question its usefulness or suggest a different method of doing business.

One of the greatest difficulties to American success in foreign trade is the intolerance of foreign customs and practices too frequently displayed. If we would make a success of foreign trade it is essential that we study the peculiarities of those we wish to make our customers. As a general thing it comes easier for us to understand the peculiarities of the South American specifications, and to diagnose with certainty the specifications used in Europe, but when approaching the Oriental, the desire for basic reasons may as well be abandoned and instead a spirit of desire to "fill the bill" alone be adopted.

In selling sheets to China or Japan it has been discovered that the number of sheets to the ton is a most important factor. According to the American practice sheets are sold by the ton and by specific gage. The purchaser knows he is getting a ton weight in goods. But such is not the case with the Oriental buyer. This difference in practice it is said has grown up as a result of the fact that England was the first in that field with sheets and sheet products. The Oriental merchant retails his sheets by the number, not by the weight. Therefore, if he receives a larger number of sheets of a specific gage in a ton purchased from England than in a ton of the same gage purchased from the United States, he naturally concludes that it is more profitable for him to buy from the former.

Foreign Gage Knowledge Necessary

This failure at first of sales of American sheets to expand in the Orient soon led to the discovery of its cause. The British gages are not identical to the American gages. Some American mills which have attempted to make a specialty of selling sheets in the Orient have adopted an entirely different set of gages, or at least a revision of those in use in the United States. As a matter of fact so firmly fixed in foreign trade practice have the English measures and gages been found that American exporters frequently are confronted with the necessity of making translations from the one into the other. A thorough knowledge of English, Belgian, French and German specifications therefore is essential in the export trade.

India has been a fruitful market for American automobiles. Yet one of the motor importers of India was recently quoted as saying, "Naturally we shall not sell so many Yankee cars when we can get English cars of corresponding price." This man had an exclusive agency for a popular American car, and his remark is considered significant in view of the outlook for American foreign trade in the future. In a way it may be interpreted as meaning that prejudice has much to do with the trend of trade and that racial connections are controlling. This is not at all the fact. The attitude assumed by that Indian agent was a result of his experience in dealing with producers in other countries. The English have cultivated a finesse in studying the specifications of foreign peoples and they understand the absolute necessity of filling those accurately.

A wealthy citizen of India once asked why no high-priced cars were made in the United States. He was shown by the American consul the catalogs of some excellent cars made by us and was duly surprised. This prospective customer's point of view was worth considering. He contended that if high-priced American cars were not offered to the Indian market the public there would not know that the United States made anything but low and medium-priced cars. Later, when competition had cut into the sales of the cheaper cars, it might be too late to recover the lost ground with the better types. The requirements of a foreign market may not always be measured by the class of goods which have been sold there. It is essential that the needs and the peculiar desires of each foreign market shall be studied.

American exporters speaking generally, have given no indication of desiring to make an exhaustive study of the peculiarities of foreign wants. Instead they have swamped the prospective foreign buyer with catalogs of such goods as can be produced in the United States and have let it go at that. In only the most obvious cases have the American plants made a sincere effort to produce goods specifically to meet foreign specifications. Australian sheets, oval wire, English pipe and some similar commodities have been produced, but generally it is a case of "take what we have or leave it." Among the export houses which made a serious pretense of doing a worldwide business only a few have definite information on specifications. The Consolidated Steel Corp. and the United States Steel Products Co. issue small pamphlets giving the specifications of the various commodities they have to offer. One may deal with wire, another with bars, and still another with sheets. In these small pamphlets are set down the various gages and measurements together with the differentials in price to be charged. Sometimes differentials charged according to the method of packing are shown. It is a general practice to print these pamphlets in English only and in terms of American weight and measurement.

One American export house which specializes in iron and steel made an effort to issue pamphlets of specifications printed in foreign languages and with the English weights and measures translated into metric units. The first translation was in Spanish, the pamphlets being separated according to commodities. The Spanish edition cost the company around $7000, after which

STANDARD WIRE GAUGES

THICKNESS IN DECIMALS OF AN INCH

Number of Gauge	Consolidated Steel Corp'n Gauge (C. S. Corp'n)	*Birmingham Wire Gauge (B.W.G.)	British Imperial Standard Wire Gauge (I.S.W.G.)	†American Wire Gauge (B. & S.)	Paris Gauge (J. de P.)	Westphalia Gauge	Number of Gauge
0000000	.4900	...	.500	.....	.....	.....	0000000
000000	.4615	....	.464	.5803	.....	.....	000000
00000	.4305	....	.432	.5165	.....	.....	00000
0000	.3938	.454	.400	.4600	.....	.....	0000
000	.3625	.425	.372	.40964	.....	.....	000
00	.3310	.380	.348	.3648	(PP) .0157	.....	00
0	.3065	.340	.324	.32486	(P) .0196	.....	0
1	.2830	.300	.300	.2893	.0236	.0236	1
2	.2625	.284	.276	.25763	.0275	.0270	2
3	.2437	.259	.252	.22942	.0314	.0300	3
4	.2253	.238	.232	.20431	.0354	.0314	4
5	.2070	.220	.212	.18194	.0393	.0350	5
6	.1920	.203	.192	.16202	.0433	.0393	6
7	.1770	.180	.176	.14428	.0472	.0441	7
8	1620	.165	.160	.12849	.0512	.0472	8
9	.1483	148	.144	.11443	.0551	.0512	9
10	.1350	134	.128	.10189	.0590	.0551	10
11	.1205	.120	.116	.090742	.0630	.0614	11
12	.1055	.109	.104	.080808	.0708	.0653	12
13	0915	.095	.092	.071961	.0787	.0724	13
14	.0800	.083	.080	.064084	.0866	.0803	14
15	0720	.072	.072	.057068	.0944	.0866	15
16	.0625	.065	.064	.05032	.1062	.0944	16
17	0540	.058	.056	.045257	.1181	.1023	17
18	.0475	.049	.048	.040303	.1338	.1150	18
19	.0410	.042	.040	.03589	.1535	.1338	19
20	.0348	.035	.036	.031961	.1732	.1512	20
21	03175	.032	.032	.028462	.1929	.1653	21
22	0286	.028	.028	.025347	.2126	.1830	22
23	.0258	.025	.024	.022571	.2322	.2145	23
24	0230	.022	.022	.0201	.2520	.2346	24
25	.0204	.020	.020	.0179	.2756	.2756	25
26	0181	.018	.018	.01594	.2914	.2992	26
27	.0173	.016	.0164	.014195	.3228	.3464	27
28	.0162	.014	.0148	.012641	.3464	.3700	28
29	.0150	.013	.0136	.011257	.3700	.3937	29
30	0140	.012	.0124	.010025	.3937	.....	30
31	.0132	.010	.0116	.008928	.....	.....	31
32	0123	.009	.0108	.00795	.....	.....	32
33	.0118	.008	.0100	.00708	.....	.....	32
34	0104	.007	.0092	.006304	.....	.....	34
35	0095	005	.0084	.005614	.....	.....	35
36	0090	004	.0076	.005	.....	.....	36
37	0085	...	.0068	.004153	.....	.....	37
38	.0080	....	.0060	.003965	.....	.....	38
39	0075	....	.0052	.003531	.....	.....	39
40	.0070	....	.0048	.003144	.....	.....	40

*Also known as Stub's Gauge.
†Also known as Brown & Sharpe's Gauge.

STANDARD WIRE GAUGES

THICKNESS IN MILLIMETERS

Number of Gauge	Consolidated Steel Corp'n Gauge (C. S. Corp'n)	*Birmingham Wire Gauge (B.W.G.)	British Imperial Standard Wire Gauge (I.S.W.G.)	†American Wire Gauge (B. & S.)	Paris Gauge (J. de P.)	Westphalia Gauge	Number of Gauge
0000000	12.45	.....	12.699	.....	.....	.....	0000000
000000	11.72	.....	11.785	14.73	.....	.....	000000
00000	10.93	.....	10.972	13.12	.....	.....	00000
0000	10.00	11.532	10.159	11.68	.....	.....	0000
000	9.208	10.795	9.448	10.40	.....	.....	000
00	8.407	9.652	8.839	9.266	(PP) .400	.....	00
0	7.785	8.636	8.229	8.255	(P) .500	.....	0
1	7.188	7.620	7.620	7.343	.600	.60	1
2	6.668	7.213	7.010	6.543	.700	.68	2
3	6.190	6.579	6.400	5.827	.800	.76	3
4	5.723	6.045	5.892	5.189	.900	.80	4
5	5.258	5.588	5.384	4.620	1.000	.88	5
6	4.877	5.156	4.876	4.115	1.100	1.00	6
7	4.496	4.572	4.470	3.665	1.200	1.12	7
8	4.115	4.191	4.064	3.264	1.300	1.20	8
9	3.767	3.759	3.657	2.906	1.400	1.30	9
10	3.429	3.404	3.251	2.588	1.500	1.40	10
11	3.061	3.048	2.946	2.304	1.600	1.56	11
12	2.680	2.769	2.641	2.052	1.800	1.66	12
13	2.324	2.413	2.336	1.829	2.000	1.84	13
14	2.032	2.108	2.032	1.628	2.200	2.04	14
15	1.829	1.829	1.828	1.450	2.400	2.20	15
16	1.588	1.651	1.625	1.290	2.700	2.40	16
17	1.372	1.473	1.421	1.151	3.000	2.60	17
18	1.207	1.245	1.218	1.024	3.400	2.92	18
19	1.041	1.067	1.016	.9119	3.900	3.40	19
20	.8839	.8886	.9144	.8128	4.400	3.84	20
21	.8052	.8124	.8124	.7239	4.900	4.20	21
22	.7264	.7109	.7109	.6426	5.400	4.65	22
23	.6553	.6347	.6093	.5740	5.900	5.45	23
24	.5842	.5585	.5585	.5105	6.400	5.96	24
25	.5182	.5078	.5078	.4547	7.000	7.00	25
26	.4597	.4570	.4570	.4039	7.400	7.60	26
27	.4394	.4062	.4166	.3607	8.200	8.80	27
28	.4115	.3555	.3759	.3200	8.800	9.40	28
29	.3810	.3300	.3454	.2870	9.400	10.00	29
30	.3556	.3046	.3150	.2540	10.000	...	30
31	.3353	.2539	.2946	.2268	.....	.....	31
32	.3251	.2300	.2743	.2019	.....	.....	32
33	.2997	.2031	.2540	.1794	.....	....	33
34	.2642	.1777	.2337	.1600	.....	.....	34
35	.2413	.1269	.2134	.1425	.....	.....	35
36	.2286	.1015	.1930	.1270	.....	.....	36
37	.2159	.....	.1727	.1130	.....	.....	37
38	.2032	.....	.1524	.1006	.....	....	38
39	.1905	.....	.1321	.08966	.....	.....	39
40	.1778	.....	.1219	.07976	.....	.....	40

*Also known as Stub's Gauge.
†Also known as Brown & Sharpe's Gauge.

the work was abandoned. The specifications were extremely valuable, however, as with their use considerable South American business was developed. This was one of the really serious attempts made on the part of Americans to meet the foreigner upon his own terms. The United States Steel Products Co. has a general catalog of specifications covering all its products, but until recently this was available only in the English. This company now is issuing Spanish, French and Portuguese editions. In addition to the general catalog the Steel Products company issues separate catalogs on fencing, and other products which are distributed to possible clients who may be interested in but one or two of the products offered in the general catalog.

Issues Government Specification

Realizing the frequency with which disputes arose in the foreign trade due to misunderstandings of specifications, the bureau of standards in Washington, in conjunction with metallurgical experts, prepared a series of pamphlets setting forth the standards in common practice in the industry in the United States. These specifications were revised in 1914 and a Spanish edition was issued in 1918. This work cost the government approximately $60,000, and copies of these pamphlets were distributed in South America in an endeavor to acquaint the trade there with the kinds of materials that may be procured in the United States. In the preface to the work, the bureau of standards stated:

"This publication is one of a series covering industrial standards for materials, which will include standards prepared by the government and by technical societies and other organizations. The purpose of this series is to facilitate commerce between the United States and foreign countries by gathering together and making available standards for materials of various kinds, commercially acceptable and representing good American practice, through their translation into various foreign languages. In most cases such standards are the result of compromise. Their publication in this series is an indication that they are working standards, subject, however, to amendment as new scientific data are obtained. It is appreciated that they are subject, however, to amendment as new scientific data are obtained. It is appreciated that the development of an ideal standard of quality usually requires service experience and experimental researches on each detail of the standard. In such work standardizing institutions, technical societies, individual investigators, and industrial laboratories co-operate in developing a true standard of quality.

"The standard printed in this number of the series was prepared by the American Society for Testing Materials, whose central offices are at Philadelphia, Pa. The object of this society, as broadly stated in its charter, are 'the promotion of knowledge of the materials of engineering and the standardization of specifications and the methods of testing.' The society has existed under its present name and charter since 1902, superseding the American section of the International Association for Testing Materials, which later had its origin in a conference held in 1882. In addition to the annual volume of its proceedings, the society issued triennially, beginning with the 1918 edition, a volume of American Society for Testing Materials standards devoted chiefly to the publication of the standards adopted by the society.

"The standards of this society are drafted by committees on which both the consuming and producing interests are represented, either equally or with a majority of the former. After discussion and criticism at general meetings of the society the proposed standards may be referred by a two-thirds affirmative vote to a letter ballot of the society, subject to adoption by a two-thirds affirmative vote. The standards of the society are extensively used throughout the United States.

"The translation into Spanish was made by Mr. Antonio Llano, Ph. D., C. E."

Practical Application Made

The Spanish edition prepared for distribution in South America and other Spanish speaking countries, carried the English text on opposite pages. This work affords a basis of understanding with prospective clients abroad. It states clearly the chemical and physical properties of accepted grades of iron and steel and their products, so that the foreigner would know what he might expect were he to ask for carbon steel rails, or open-hearth steel girders, or high-carbon steel splice bars or any of the other numerous products of the American industry. This was a valuable work and will contribute, in time, considerably to the success of the export trade in iron and steel, although it is a regrettable fact that few practicing exporters in the United States have known the government had undertaken this measure of assistance.

The standard specifications, naturally, do not inform a foreign client what may be the measurements of the weights of these various products of the American industry. This is knowledge which a few of the very large export companies in iron and steel attempt to supply in their various pamphlets. But with all this data in the hands of the foreigner it is not guaranteed that orders will be forthcoming. These standards and specifications must be translated into terms of the wants of such a customer and that is the function of the American agent in the field or the American house seeking a foreign business.

By-Product Industry

(*Concluded from page 697*)

able to bring and in what direction further development is expected and most desired, or with other words what weak spots are still left to require special attention in this respect. In stripping the gas to be used for heating the ovens or for other industrial purposes, everything is recovered except ethylene. Although research work conducted in England by Bury yielded results the process in its present form is too complicated to warrant a general introduction.

Feld and Burkheiser's processes of recovering sulphate of ammonia without the addition of acid by utilizing the sulphur contained in the gas, have not proved sufficiently workable to encourage a general introduction. Inasmuch as it is of the utmost importance to take out as much gas from the retorts as is given off by the coal, the gas pressure inside the retorts should be maintained as close as possible at plus minus zero. By minus zero a certain amount of air is drawn into the retorts and a proportionate amount of gas will be burned to carbon dioxide and lost, while the temperature thereby developed may become so high as to decompose parts of the gas at the same time and cause a loss of by-products. With too great a pressure in the retorts a certain amount of gas is lost by leakages into the flues or through the looting of the doors.

Use of Governors

If crude gas enters the combustion chambers through leakages in any quantities, the chambers may become obstructed. The danger is greater however, with suction in the retorts compared with too much pressure because excess pressure forces gas in form of smoke from the ovens, while with excess suction no such indication is noticeable. To make either condition impossible, governors have been installed in the by-pass pipe between the suction and pressure main close to the exhauster. The bottom valve sometimes operates stiffly on account of tar depositing on its sliding surfaces.

Better results, therefore, have been obtained with governors consisting of a small gas bell under which the gas from the collecting main is introduced through a small pipe. The bell is raised or lowered by a lever attachment which opens or closes the steam valve of the engine driving the exhauster accordingly. For belt or electrically driven exhausters these governors, however, are not applicable for turbo blowers belt or electrically driven ex-

hausters or where the exhauster is far distant from the ovens.

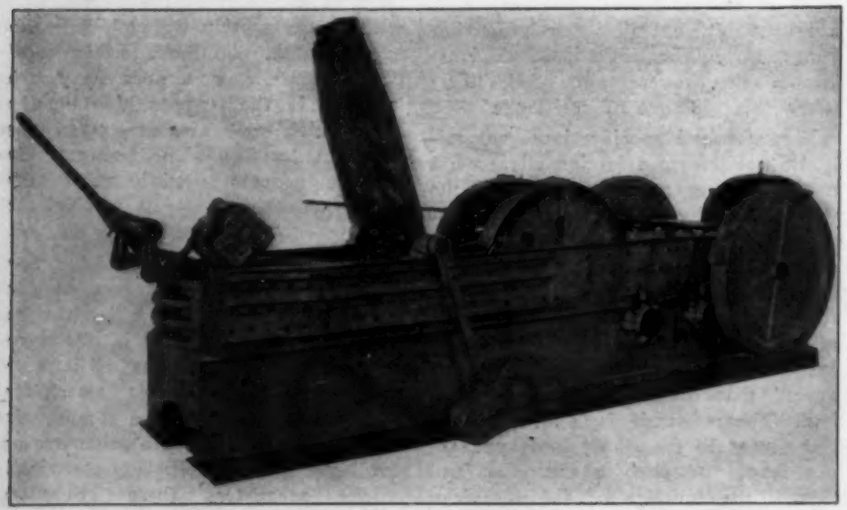
Considerable improvements have been made in the design of oven doors to make them stronger and prevent a cooling of the charge ends, but workable means to render them gas tight without looting still are wanting. Doors, which tighten with asbestos or with a filling of coke ballast to reduce the loss of gas to a minimum while charging the ovens, continue to be used.

Press Bales Scrap Metal Into Briquets

Metal baling presses recently developed by the Chicago Baling Press Mfg. Co., Chicago, embody the feature of a diamond shaped or tapering compression chamber which exerts pressure from the sides as well as from the plunger to which power is applied. These presses are self-contained, built on heavy steel channels with continuous heavy ribbed sides and operated either by motor or belt from a line shaft. One of the new types is especially designed for cabbaging copper and other nonferrous metals, shavings, turnings and the like into bales 5 x 5 x 12 inches weighing about 30 pounds, which is practically standard for use in crucibles. The press is sufficiently sturdy to produce bales at hydraulic density.

Another new type which is shown in the accompanying illustration is a briquette press on lines similar to the preceding, but delivering a bale 8 x 8 x 12 inches weighing 70 to 100 pounds, which is standard and equal to hydraulic density. It occupies about 4 x 12 feet floor space. A special scrap tin bushelling press has also been developed, resembling the heavier press made by this company. A feature of this machine is the automatic discharge by which the bale is lifted out of the compression chamber by the same lever that operates the cover. This produces bales 14 x 14 x 15 inches weighing from 65 to 125 pounds as desired.

These presses are double back geared with toggles to transmit power to the compression head. Energy in two fly wheels at high speed quickly converts the loose scrap into a compact bale, the density being regulated by the operator. A crushing block is contained between the steel pin and the rear wall of the plunger as a safeguard if an uncompressible mass is encountered. In this event the block is crushed, avoiding damage to the mechanism. A new block is easily replaced.



BRIQUETS PRODUCED BY THIS PRESS ARE 8 X 8 X 12 INCHES AND WEIGH 70 TO 100 POUNDS

Develops Drill Grinder

For grinding drills, the Bickford-Switzer Co., Greenfield, Mass., is manufacturing a grinder in which the drill being ground is held in a chuck. A small crank provides a combined rotative, eccentric and swinging motion which not only gives the proper lip clearance but brings the two lips in contact with the wheel consecutively. The machine, as shown in the accompanying illustration, holds the drill in position by placing the shank end in a cup center while the cutting end is held by two working jaws. To increase the endurance of the drill, the machine slightly bevels off at the outer corner of the cutting lip. Drills from ⅛ to ¾ inch are accommodated by the grinder. A small motor runs the grinding wheel.

Approximately 850 pounds of coal gasified in a gas producer or 750 pounds of powdered coal or 50 to 75 gallons of fuel oil are required to produce a ton of steel by the open-hearth process when the stock is charged cold.

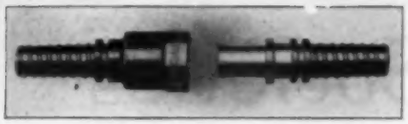
TURNING A SMALL CRANK ROTATES THE DRILL WHILE BEING GROUND

Breaks Sand-Cast Pig with Air Hammer

A pneumatic hammer is being manufactured by the Sloss-Sheffield Steel & Iron Co., Birmingham, for breaking the sows at blast furnaces which cast their metal in sand pig beds. Approximately one ton of pig iron can be broken into the proper size per minute according to results attained at various furnaces equipped with this type of hammer. The breaking operation usually is performed with a mulligen which is a two handled sledge swung by two workmen known as iron breakers.

At the plant of the Sloss-Sheffield Steel & Iron Co. the pneumatic hammer is in use on three furnaces and the company is expecting to install it on two more. It is also being installed by the Central Coal & Iron Co., Holt, Ala. The company sells these hammers only in pairs. Although the breakage has been light a furnace would naturally not have on hand men to handle the iron in case of a breakdown of the tool. It is, therefore, considered best to carry the equipment in duplicate.

J. P. Dovel, superintendent of fur-



THE JOINT IS DESIGNED TO PREVENT LEAKS

naces for the Sloss-Sheffield company, states the cylinder is 8 inches in diameter with a 14-inch stroke. The air pressure required is 60 pounds per square inch, the average air consumption being 60 to 75 cubic feet per minute. The device averages 15 strokes per minute and the weight is 2500 pounds.

Hose Coupler Is Air Tight

An air hose coupling with several new and important features, as shown in the accompanying illustration, has been placed on the market recently by the Ingersoll-Rand Co., 11 Broadway, New York. It consists of two parts, male and female. The female end is fitted with a V-shaped rubber gasket, which insures an air tight joint. The gasket is prevented from blowing out by a protective shoulder inside the coupling in the event that the coupling should be disconnected under pressure. There are no exposed parts on the female end which might be liable to injury or to cause jamming or sticking. The locking shoulders are heavy with large bearing surfaces. The locking spring is strong and durable and may be replaced if necessary.

The male end is provided with a long bearing to assure alignment and long wear. Another feature of interest is the absence of any outer sleeve exposed to injury. The air ports are straight and of uniform diameter. The coupling may be connected or disconnected by a quarter turn. A groove in the hose end of each part provides for the use of a clamp to attach it securely to the hose.

The couplings are manufactured in ½-inch and ¾-inch sizes, and are interchangeable. A ½-inch male connection may be used with a ¾-inch female connection. The gaskets also are interchangeable between the two sizes.

Designs Angle Shear

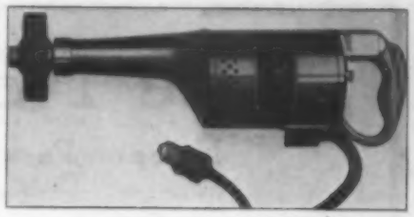
For cutting small angles to length, the Dreis & Krump Mfg. Co., Chicago, has designed a manually operated shear of light weight. The frame and base of this shear, as shown in the accompanying illustration, are made of pressed steel and of one piece. A geared lever actuates the upper shear blade which is reversible and has two cutting edges. A feature of the device is that the upper blade may be raised high enough to permit the angle to be inserted from the front of the machine. To hold the angle in place while being cut a hold-down device is provided. The shear, which weighs only 22 pounds and is 9 inches long and 8 inches high, accommodates angles 1½ x 1½ x ⅛ inches and lighter.

Designs Heavy Duty Lathe

Among the heavy duty lathes recently introduced in the machine tool field is a rapid production lathe developed by the Oliver Machinery Co., Grand Rapids, Mich. This lathe which will accommodate work up to 16 inches in diameter is shown in the accompanying illustration in its simplest form with a three-step cone pulley headstock. The driving cone has been made large and each step is wide to give a powerful drive at a comparatively high speed.

THE UPPER SHEAR BLADE IS ACTUATED BY A GEARED HANDLE

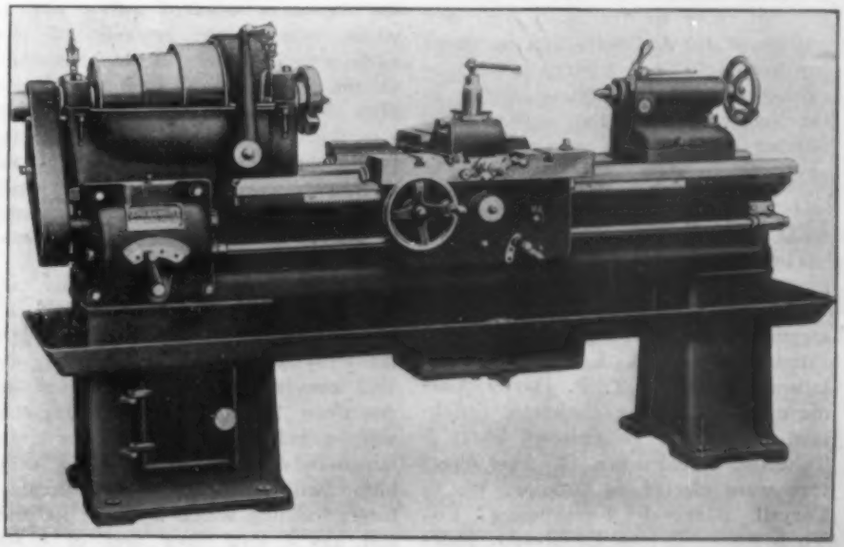
The starting and stopping of the machine is controlled by a clutch operated through the conveniently located lever in front of the headstock. Either double or single back gears may be provided. Four feeds are given the spindle through the quick change gear box. To give sufficient stability, the tool post mounted on the carriage is of unusually heavy design. A continous flow of cutting compound is provided.



THIS TOOL STOPS AUTOMATICALLY WHEN NOT IN USE

Designs Portable Grinder

For smoothing castings and for buffing and polishing work, the small electric portable grinder shown in the accompanying illustration, is manufactured by the Wodack Electric Tool Corp., Chicago. It is motor driven, using either alternating or direct current, and automatically stops when not in use. The current contact functions through a spring lever in the handle which is released as soon as the pressure of the operator's hand is removed from the handle. The grinder is made in three sizes corresponding to the size of wheel to be used, ½ x 3-inch; 1 x 4-inch and 1 x 8-inch.



THIS LATHE IS DESIGNED FOR PRODUCTION PURPOSES AND WILL ACCOMMODATE WORK UP TO 16 INCHES DIAMETER

Late News of the Societies

Notes on Past and Coming Meetings of National and Local Trade and Technical Organizations

PROVISIONAL arrangements have been completed for the acceptance of the invitation of the directors of the Comite des Forges de France to hold the autumn meeting of the Iron and Steel institute in Paris, France. Tentative dates were announced as Sept. 18-19. The bessemer gold medal has been awarded by the organization this year to Charles Fremont, Paris, for his work in connection with the development of the impact test on notched bars. Alfred Hutchinson, managing director, Skinningrove Iron Co., Ltd., Saltburn-by-the-sea, England, has been elected a member of the council of the institute to fill the vacancy which arose through the death of Charles Allen.

* * *

Brass Manufacturers to Meet

The National Association of Brass Manufacturers will hold its spring meeting at the Hotel Sherman, Chicago, March 22-24. William Webster of Chicago is secretary of the association, which takes in manufacturers of various sanitary and other brass devices.

* * *

To Exhibit Railway Appliances

The National Railway Appliances association will hold its annual exhibition in the Coliseum, Chicago, March 14-17, in connection with the annual meeting of the American Railway Engineering association. All of the exhibition space on the main floor and gallery of the Coliseum and in annex has been sold and a large number of exhibitors will be accommodated in the ballroom over the annex. The number of exhibitors exceeds that of any previous show.

* * *

Elect Officers and Directors

The steel works section of the Engineers' Society of Western Pennsylvania was formally organized at a meeting at the William Penn hotel, Pittsburgh, Feb. 28. Executives elected follow: Chairman, T. P. Davies, Carnegie Steel Co.; vice chairman, Strickland Kneass Jr., Youngstown Sheet & Tube Co., Youngstown, O. Five directors were elected as follows: W. C. Coryell, General Fireproofing Co., Youngstown, O.; O. E. Gressly, Jones & Laughlin Steel Co., Pittsburgh; Grant D. Bradshaw, Andrews-Bradshaw Co., Pittsburgh; G. M. Goodspeed, National Tube Co., Pittsburgh, and Frank E. Leahy, Carnegie Steel Co.

Over 125 members were present at the meeting. Discussion was centered on the paper presented by Strickland Kneass Jr., on "Distribution and Use of Coke Oven Gas." Mr. Kneass outlined the characteristics of coke oven gas, the available supply, and the system of distribution. Lantern slides were presented.

* * *

Discusses Gas Foundry Furnaces

The advantages and disadvantages of different types of core baking and mold drying gas furnaces were discussed Wednesday night, March 9, at the regular March meeting of the New England Foundrymen's association. The principal speaker was M. A. Combs, of the Maxon Furnace & Engineering Co., New York. Mr. Combs' paper also touched upon various questions relating to melting of nonferrous metals through the use of gas as a fuel.

* * *

Reviews Manufacture of Pipe

Before a joint meeting of the Boston section of the American Society of Mechanical Engineers and the Massachusetts chapter of the American Society of Heating and Ventilating Engineers, at the Boston City club, Feb. 23, H. T. Miller of the National Tube Co. showed a series of motion pictures which followed the processes of pipe making from the ore, through the mills to the finished product. Mr. Miller, after briefly describing pipe manufacture from the bamboo and clay period to the present steel age, told of the recently discovered methods of making pipe which minimizes the tendency to rust by eliminating the interior scale.

* * *

Convention Site Will Be Adequate

According to an announcement just made by the board of directors, the 1921 convention and exhibition of the American Society for Steel Treating will be held Sept. 19-24 at the State fairgrounds, Indianapolis. The exhibition will be held in the Manufacturers building which is 220 x 360 feet and has a total floor area of 17,800 square feet. The central section of this building, measuring 100 x 240 feet, is known as the sunken garden and is 20 inches below the level of the surrounding floor. The building is new, well lighted and is adapted to exhibition purposes. The floor space will be divided into 161 10 x 20-foot sections which will be plotted on a floor plan to be distributed about March 15.

The meeting will be held in the Women's building located about 400 feet from the exhibition hall. This building affords three or more large meeting rooms where it will be possible to hold several sectional meetings simultaneously.

The Indianapolis chapter of the society already is engaged in making plans for the entertainment of visiting members and guests. George DeSautels, member of the program and papers committee of the national organization, is organizing members of the chapters into 15 committees to arrange the details for the convention.

* * *

Accountants To Meet in Cleveland

Arrangements have been tentatively completed by the National Association of Cost Accounts, New York, for their annual convention which will be held in Cleveland, Sept. 14-16. Headquarters will be at the Cleveland hotel. According to a bulletin just issued, the program will deal with practical cost subjects.

Convention Calendar

April 20-21—National Metal Trades association. Annual convention, Astor hotel, New York. Homer D. Sayre, Peoples Gas building, Chicago, is secretary.

April 21-23—American Electrochemical society. Spring meeting at the Hotel Chalfonte, Atlantic City, N. J. Joseph W. Richards, Lehigh university, Lehigh, Pa., is secretary.

May 5-6—British Iron and Steel institute. Spring meeting at the Institution of Civil Engineers, Great George street, London, S. W. 1. The secretary is George C. Lloyd, 28 Victoria street, London, S. W. 1.

May 9-10-11—American Association of Engineers. Annual convention to be held in Buffalo. National association headquarters, 63 East Adams street, Chicago.

May 19-20—National Machine Tool Builders' association will hold its spring convention at Hotel Traymore, Atlantic City, N. J

May 23-26—American Society of Mechanical Engineers. Spring meeting, Congress hotel, Chicago. Calvin W. Rice, 29 W. Thirty-ninth street, New York, is secretary.

Sept. 14-16—National Association of Cost Accountants, will hold its annual convention at the Cleveland hotel, Cleveland. The secretary's address is 233 Woolworth building, New York.

Corporation Studies 8-Hour Day

Committee Comprising Executive Officers of United States Steel Subsidiaries at Work Six Months, It Is Announced—Judge Gary Points Out Seven-Day Week and Long Turn Have Been Abolished

NEW YORK, March 8.—The United States Steel Corp., announces that a committee had been appointed to investigate the 12-hour working shift and the advisability of installing three shifts in continuous processes of iron and steel making. The committee is headed by William B. Schiller, president of the National Tube Co., Pittsburgh, and its other members are: H. D. Williams, president, Carnegie Steel Co.; E. J. Buffington, president, Illinois Steel Co.; W. P. Palmer, president, American Steel & Wire Co.; E. W. Pargny, president, American Sheet & Tinplate Co.; August Ziesing, president, American Bridge Co.; George G. Crawford, president, Tennessee Coal Iron & Railroad Co.; Samuel B. Sheldon, vice president, Minnesota Steel Co.

It is stated that the committee has been operating for about six months and has found that many employes in the industry are not wholly favorable to a change, because under the present arrangement they are able to earn much more than if the straight 8-hour day were put in effect. The committee still is conducting its investigations.

E. H. Gary, chairman of the Steel corporation, issued the following statement Monday:

"We have today been in consultation with the presidents of subsidiary companies who compose the special committee heretofore appointed to consider the 12-hour day question, the members of the committee have not reached a conclusion which is entirely satisfactory to all of them with respect to some of the features involved, and therefore we have not made or are we prepared to make a report. However, I believe that within the comparatively near future, perhaps 30 days or a little more, we shall receive the result of their investigations. The 'seven-day week' and the 'long-turn in changing shifts' have been entirely eliminated by all our companies."

Trade Union Enjoined

A perpetual injunction against the patternworker's union, enjoining it from attempting to induce patternmakers to violate their contracts with employers, has been issued in the common pleas court at Cleveland. The decision follows the lines of those already rendered in many courts throughout the country, that it is illegal for one man to persuade another to violate a contract. The case was an outgrowth of the patternmakers' strike which began last July. The pattern manufacturers are continuing their fight for the open shop, and are endeavoring to operate their shops while the members of the union remain out.

LABOR NOTES

SUBSCRIPTIONS for employe's stock of the United States Steel Corp., received total 81,710. These subscriptions called for up to and including March 2, numbered 255,308 shares of stock.

The Southard-Robertson Co., stove manufacturer, Peeksvill, N. Y., employing 400 molders and machinists has resumed operations at its plant, the men returning to work with a voluntary reduction in wages.

The Northway Motors Corp., Natrick, Mass., has distributed a common stock bonus of approximately $6000 among its employes. The corporation provided that if for any reason an employe does not wish to keep his stock it will take it from him and allow $15 for each share.

The Chicago Hardware Co., North Chicago, has closed its plant temporarily, following a strike of employes when a cut of 20 per cent in wages was put in effect. The plant will be reopened in a few days as an open shop.

Under the laws of Massachusetts, the Triangle Mutual Insurance Co. has been incorporated to write compensation and allied insurance on the mutual plan adopted by interests identified with the Wickwire Spencer Steel Corp., Worcester, Mass.

The Chateaugay Ore & Iron Co., has closed its iron ore mines at Lyon Mountain, N. Y., for an indefinite period. During the shutdown a new shaft will be sunk which will give employment to a small number of the miners at reduced wages.

Four repair shops of the New York Central railroad, employing about 3600 men were closed temporarily Feb. 19. The shops and the number of men they employ are as follows: West Albany, N. Y., 1200; Elkhart, Ind., 700; Collinwood, O., 900; and Depew, N. Y., 800.

The International Motor Co., has reduced wages 10 to 30 per cent at its New Brunswick, N. J. plant. The working force also will be reduced. The wages of a number of the office force in the toolmaker's division will be cut from 85 to 65 cents and those of laborers, from 55 to 35 cents.

The Newport News Shipbuilding & Drydock Co., on March 2 announced a general wage reduction averaging between 12 and 15 per cent, effective March 15. It effects approximately 9000 workmen and was said to be in proportion to the decrease in the cost of living in Newport News.

Sharon Steel Hoop Issues First Mortgage Bonds

The Sharon Steel Hoop Co. has sold to Dillon, Read & Co. of New York, and associates, an issue of $5,000,000 first mortgage, 20-year, 8 per cent, sinking fund gold bonds. It is callable on 30 days notice, at $107.50. The sinking fund is 5 per cent annually. Proceeds of the issue are to retire an underlying obligation of approximately $1,400,000 and otherwise to readjust the balance sheet. The issue is a first lien on property carried on the company's books at $10,398,047, after depreciation and valued by an independent appraisal at more than $16,000,000.

President S. P. Ker, in a statement, says the Sharon Steel Hoop Co's. productive capacity is 135,000 tons of pig iron; 440,000 tons of steel ingots and 320,000 tons of finished products.

The company's balance sheet after having given effect to the proceeds of the issue as of Dec. 31, last, showed total tangible assets, less depreciation and other reserves of $17,944,759 of which $6,851.15 are current assets. Total liabilities, excepting these bonds, were $3,141,924. Net tangible assets available for the bonds are reported, as of the indicated date, as $14,802,835. Annual profits applicable to interest charges, before depreciation and federal taxes, averaged $2,840,916 for the five years ending with 1920. Profits for 1920 were $2,044,693 after applying more than $600,000 to the adjustment of inventories to market value.

Sentiment Unchanged by Events

Inauguration of New President Offers No Immediate Evidence of Giving Impetus to Business Activity—Reserve System Improves but Money Rates Still High—Price Declines Continue—Failures Are Large—General Financial News

BY JOHN W. HILL, FINANCIAL EDITOR

THE the inauguration of a new President of the United States at the present stage of economic disturbance in the country was passed over virtually unnoticed by the financial world last week. The reason for this is plain. Stagnation prevails in both the commercial and security markets and neither the inaugural address nor prospective measures of the new administration provide any indication of immediate relief. As a matter of fact, business recovery awaits the completion of underlying economic readjustments rather than prospective political developments.

Undoubtedly the change in the administration has helped general business sentiment. It is felt in trade circles and promised by President Harding that officious government interference with business will cease and that all problems vitally affecting business will be given sympathetic treatment. Many great economic problems await solution by the new president and congress. They include taxation, tariff, the allied debt, a foreign policy and government efficiency and economy. Proper handling of each of these issues will be helpful to business but months must elapse before the effect will be perceptible.

Recovery of the cash reserve ratio to note and deposit liabilities of the federal reserve system to 50.8 per cent last week has raised the question in many business men's minds as to why money rates continue so high. They have seen trade activities dwindle and prices fall while the federal reserve system's rediscounts have shrunken $475,000,000 since the peak of November and note circulation has contracted $362,000,000 from Christmas week. Yet money seems almost as tight as ever. Eventually rates will respond to the fundamental improvement being made in the financial situation. In the meantime any credit slack is being absorbed by a foreign and domestic investment demand, by the vast bank credits needed to support an excessive balance of export trade, and by the amounts needed to carry unliquidated inventories and bridge temporarily embarrassed industries over the present crisis. Fortunate indeed it is for the country that it has a strong banking system, otherwise a severe collapse might have occurred. This very situation, however, may delay liquidation and postpone eventual recovery.

Dire predictions of an avalanche of commercial failures have failed to materialize. February failures as reported by Dun's commercial agency amounted to 1641 compared with 1895 in January and 2278 in February, 1915. Liabilities, however, standing at $60,852,449 were the highest on record and compare with the previous high mark of $32,400,000 in February, 1915.

Price Drop Is Continuing

Of great interest are price changes during February as reported by commercial agencies. While they show some slackening in last fall's severe liquidation, they offer no evidence that prices are yet stabilized. Bradstreet's index, composed of 96 wholesale prices, largely of raw material products, on March 1 stood at $11,865, a drop of 4 per cent during the month, compared with 2.3 per cent in January; 7 per cent in December and 13 per cent in November. The most significant part of this record is that the index is now only 27.5 per cent above the 1913 level compared with the peak of 127 per cent above the prewar basis one year ago.

Dun's index number, composed of around 300 wholesale commodity quotations, receded 2.1 per cent in February, against 6.4 per cent in January; 6.2 per cent in December and 6.8 per cent in November. The index number is now only 50 per cent above the prewar level as compared with 118 per cent above last May. These numbers, which reflect wholesale prices, indicate that retail prices and the cost of living may be expected to decrease still further. It is well to remember, however, that raw material and wholesale prices always fluctuate more violently than retail prices and considerably in advance. Prices abroad are moving downward unchecked, also. The *Economist's* index of wholesale prices for Great Britain declined 7.9 per cent in February against 5.2 per cent in January. This index is now 92 per cent above the prewar level compared with 210 per cent when at the peak.

Developments last week of unusual interest included the passing and suspension of dividends by a number of copper, motor and other companies. Unfavorable earnings reports for January of leading railroads, and the failures of a large sugar house and an important stock exchange firm also attracted much attention in the financial world.

Midvale Heads See More Wage and Price Drops

Further liquidation of commodity prices and readjustment of wages, in the steel industry as elsewhere, are essential to the revival of business in the view of Chairman W. E. Corey and President A. C. Dinkey, of the Midvale Steel & Ordnance Co., according to the statement signed by these executives and contained in the annual report of the company for 1920. The principal underlying factor in the present trade depression is the fact that the consuming public believes there must be lower prices, says the statement.

The survey of the outlook in the steel trade by the Midvale heads is of particular interest because of the fact this company was among the first to start the recent price reductions in steel in order to obtain sufficient business to keep mills in operation. On this point the statement reads:

"The halt in trade, in evidence at the close of 1920, continued through January, 1921," reads the statement, "so that the situation became extremely serious, not only to our stockholders, but especially to the 30,000 employes who, under normal conditions depend upon the operation of our plants for their daily living.

"While we appreciate the fact that the causes of the halt are very complex nevertheless, we believe that one of the important factors in the hesitation of buyers, was that they believed and rightly that the market for steel products was falling. The psychology of the situation was that no buying of importance was to be done until the consuming interests were convinced that the market had fallen.

"We therefore on Feb. 4, 1921, announced radical reductions in the selling prices of our standard rolled products. This action was taken not with the expectation that it would immediately start a buying movement, but in the belief that such a step must be the first one taken in order to restore normal conditions. A frank recognition of the true conditions, by both employers and workmen is imperative."

The statement points out that there

is little prospect of immediate relief in one factor of high cost, that of high freight rates, which now are 90 per cent above 1914. The first half of the year must be devoted to the solution of the cost problems confronting industry, the report declares.

Net earnings amounted to $12,424,919 against $10,588,605 in 1919. The company now has an unappropriated surplus of $59,865,449 showing a net addition of $4,424,919 from 1920 earnings. The comparative income account follows:

	1920	1919
Net earnings	$19,687,543	$16,787,254
Other income	2,557,658	2,277,630
Depreciation and mine exhaustion	6,746,751	5,334,770
Bond interest	2,734,810	2,802,789
Cambria Iron dividends	338,720	338,720
Total deductions	9,820,282	8,476,792
Net income for year	12,424,919	10,588,605
Dividends during year	8,000,000	9,000,000
Balance	4,424,919	1,588,605
Total surplus	59,865,449	55,308,703

The balance sheet shows $98,970,320 in current assets including $27,684,000 cash, $15,864,909 in customers' accounts and $45,393,834 in inventories. Last year the current assets were $107,960,607 including $5,803,589 in cash, $8,299,588 in customers' accounts, $39,466,403 in government securities, and $48,071,104 in inventories. Net working capital as of Dec. 31, 1920 was $86,842,322 compared with $87,432,450 one year before.

The company achieved a reduction in labor production costs in 1920, the report showing that the wages per ton of products shipped amounted to $42.29 last year against $46.47 in 1919. In 1916 they were $39.44 and 1916 only $18.95. The total payroll in 1920 was $58,828,739 against $39,827,922 in 1919 and the number of employed was 27,224 against 22,955 in 1919; 34,434 in 1918; 38,374 in 1917 and 31,048 in 1916.

That the reduction in wage cost per ton in 1920 did not come from lower wages, but through increased efficiency is indicated by the fact that the average wage per employe per year in 1920 reached the peak of $2161 against $1734 in 1919; $1722 in 1918; $1307 in 1917 and $1015 in 1916. Last year the company shipped 1,309,838 gross tons of products. This compared with 826,925 tons in 1919; 1,448,374 in 1918; 1,614,373 in 1917, and 1,558,108 in 1916.

Radiator Net Up

The American Radiator Co. and its subsidiaries report net profits of $4,186,889 for 1920, in contrast to $3,571,843 for 1919. The profit for 1920 is 7 per cent on $3,000,000 of the company's preferred stock outstanding and 28 per cent on $13,806,225 of its outstanding common stock. The company has written its inventories to current replacement value. The value of such inventories on December 31 was $7,436,234, against $9,573,961 on December 31, 1919. It has no funded indebtedness and has a substantial cash balance after payment of all its current bank indebtedness.

American Locomotive Co. Orders Increased

Unfilled orders on the books of the American Locomotive Co., at the close of 1920 amounted to $24,270,702 compared with $8,999,921 at the close of 1919, an increase of 153 per cent. About 64 per cent of the gain was for domestic and the remainder for foreign account. In the preceding year 32 per cent was domestic and 68 per cent foreign business.

In his statement to stockholders contained in the annual report of the company President Andrew P. Fletcher says that the prospect for orders for new equipment for "any appreciable volume" is not promising. Earnings for the company in 1920 amounted to $66,884,613 compared with $70,073,581 in 1919. After deducting all charges and taxes the profit available for capital stock was $7,111,126 against $9,494,269 in the year before. The comparative income account follows:

	1920	1919
Gross earnings	$66,884,613	$70,073.581
Expenses & depreciation	58,043,172	58,115,819
Gross profit	$8,841,440	$11,957,762
Interest on bonds, etc.	94,300	228,189
	$8,747,139	$11,729,573
Taxes	1,636,013	2,235,304
Profit	$7,111,126	$9,494,269
Preferred dividend	1,750,000	1,750,000
Common dividend	1,500,000	1,375,000
	$3,861,126	$6,369,269
Reserves for add. and betterments	2,000,000	4,000,000
Net	$1,861,126	$2,369,269

"The available profit for the calendar year was 10.6 per cent on gross earnings in comparison with 13.5 per cent for the calendar year 1919," said the president's report.

"The amount of materials and supplies of inventory account together with work in progress Dec. 31, 1920, was $14,609,096 in comparison with $7,170,804 as of Dec. 31, 1919. The materials and supplies have been valued at cost or market price, whichever was lower."

Mortgage Is Filed

A copy of a mortgage for $500,000,000 has been filed in the office of the county register at Elizabeth, N. J., by George L. Wody, general manager of the Moore plant of the Bethlehem Shipbuilding Corp. The paper declares that the mortgage is given to the Bethlehem Steel Corp. and the Bethlehem Steel Co. by the Guaranty Trust Co. of New York, as trustee of the loan.

Sulphate Price

Drops 50 Cents As Result of Lessened Demand—Other Products Quiet

New York, March 8.—Due to continued lack of demand, sulphate of ammonia has settled to $3, f.o.b. works, a decline within the past fortnight of about 50 cents. Sellers assert that virtually no trading is being done and that the prospects for a revival in the near future are small. Fertilizer interests, it is said, still have substantial stocks on hand and consequently are in no mood to consider further buying. At the same time demand from Spain and one or two other European countries frequently in this market is lacking.

Quotations on other coal tar products, while weak, are unchanged. Pure benzol is quoted at 30 to 36 cents, per gallon, f.o.b. works; 90 per cent benzol, 29 to 34 cents, solvent naphtha, 29 to 34 cents, and toluol, 30 to 36 cents. Naphthalene in flakes is quoted at 9 to 10 cents, and in balls, at 10 to 11 cents. These prices apply to both spot and future shipments, although naphthalene is practically the only product that is being bought for later delivery.

While demand generally is quiet, it appears toluol is the least active of any product, with the possible exception of sulphate of ammonia. For many weeks past there has been little or no inquiry for toluol and the fact that supplies are not heavy is attributed in a measure to the fact that considerable production continues to go into motor fuel. This reason also may be applied to an extent to benzol and solvent naphtha, both of which are moving in small quantities.

Coke Oven By-Products

Spot	
Per Gallon at Producers' Plants	
Pure benzol	$0.30 to .36
Toluol	.30 to .36
Solvent naphtha	.29 to .34
Per Pound at Producers' Plants	
Phenol	nominal
Naphthalene, flake	$0.09 to .10
Naphthalene, balls	.10 to .11
Per 100 Pounds at Producers' Plants	
Sulphate of ammonia	$3.00
Contract	
Pure benzol	$0.30 to .36
Toluol	.30 to .36
Solvent naphtha	.29 to .34
Per Pound at Producers' Plants	
Phenol	nominal
Naphthalene, flake	$0.09 to .10
Naphthalene, balls	.10 to .11
Per 100 Pounds at Producers' Plants	
Sulphate of ammonia	nominal

Business Declines

In Refractories as More Blast Furnaces Are Blown Out

Pittsburgh, March 8.—Sellers of fire clay brick report existing conditions as discouraging but, notwithstanding, they are optimistic regarding the future. While a few report no inquiries coming in, others are in receipt of a fair number for repairing purposes and these are interrupted occasionally with inquiries for new construction work, each involving approximately 500,000 brick. The iron and steel industry serves as a barometer for the refractories industry and continuing inactivity among blast furnaces and steel plants is reflected by the sustained lack of sizable demand for fire clay and silica brick. Average operations of the kilns are said to be in the neighborhood of 35 or 40 per cent while shipments are approximately 30 per cent. Some brick manufacturers are stocking some of their product but for the most part they are not inclined to engage heavily in this pursuit at present high costs.

The United States Steel Corp., in continuing to curtail operations at its various plants and blast furnaces, has found it necessary to cut down its requisitions of brick. These are not nearly so numerous or heavy as a few weeks back. It is understood to be doing some relining of blast furnaces, although relinings are not necessary in numerous instances because they were made in the 1919 strike period. Other large users likewise are taking only a small part of their normal requirements. That orders for brick on books are not larger is due to the fact users did not anticipate their year's requirements and neglected to place their orders. Manufacturers of bauxite brick report sustained demand.

Fire Clay Brick

(Per 1000 f.o.b. works)

Pennsylvania, No. 1	$40.00 to 50.00
Pennsylvania, No. 2	30.00 to 35.00
Ohio, No. 1	40.00 to 45.00
Ohio, No. 2	30.00 to 35.00
Illinois, No. 1	40.00 to 45.00
Illinois, No. 2	30.00 to 35.00
Kentucky, No. 1	40.00 to 45.00
Missouri, high grade	50.00 to 55.00
Missouri, No. 1	37.50 to 45.00
Maryland, No. 1	50.00 to 60.00
Maryland, No. 2	40.00 to 45.00

SILICA BRICK

Pennsylvania	$45.00 to 50.00
Chicago	55.00 to 60.00
Birmingham	50.00 to 55.00

MAGNESITE BRICK

(Per Net Ton)

9 x 4½ x 2½	$90.00

CHROME BRICK

(Per Net Ton)

9 x 4½ x 2½	$75.00

BAUXITE BRICK

(Per Net Ton)

55 per cent	$35.00 to 50.00
76 per cent	85.00, base

Hanna Ore Book Issued

M. A. Hanna & Co.'s ore book for 1921, now being circulated, contains a great deal of useful information in addition to the analyses of the iron ores which this firm sells. First, all the rail and vessels rates on ore are given; then statistics on production of the various ranges in the Lake Superior district, and shipments. Average analysis of all ores from the principal ranges are published, as well as selling prices at Lake Erie ports and unit values from 1900 to 1920. Pig iron production figures also are set forth by years over a long period. All the important statistics of the ore trade are presented in handy reference form. The book contains a photograph of the first electrically operated shovel used in the mining of ore in the Lake Superior district, at one of the Hanna properties.

Buys Myerstown Plant

The Myerstown Foundry & Mfg. Co., Myerstown, Pa., has purchased from the Treadwell Engineering Co., the plant which the former has been operating for a number of years. The Myerstown company during the past year completely electrified the entire plant and contemplates making a number of additional improvements in the near future. The plant includes a fully equipped gray iron foundry and pattern, forge and machine shops and the company expects to add numerous new tools. The officials of the company are: President, L. F. Krum; vice president, E. R. Euston; secretary, S. P. Line.

Obituaries

COMLY B. SHOEMAKER, who retired Jan. 31 as president and general manager of the Glasgow Iron Co., Pottstown, Pa., after 32 years in that position, and became chairman of the board, died at his home in Philadelphia, Feb. 24, of double bronchial pneumonia. He was 82 years old. He began his career in the iron industry when 20 years old, rolling iron plates. He rose to a partnership in the company which changed its name to Bailey & Shoemaker, Mr. Bailey being Mr. Shoemaker's father-in-law. Later the name was changed to the Glasgow Iron Co. with Mr. Shoemaker as treasurer and a director. Mr. Shoemaker is survived by his son, Comly B. Shoemaker, 2nd, who recently succeeded his father as president.

Robert Johnston, general manager and treasurer of the Bellaire Stove Co., Bellaire, O., died March 1, 1921.

Ernest Edward White, treasurer of the Union Carbide Sales Co. since its organization in 1906, died Feb. 28 at St. Lukes hospital, Chicago.

S. F. Smead, formerly vice president of the Crown Stove Works, Chicago, died Feb. 25 at Los Angeles, Cal., of heart failure. He was 72 years old.

Benjamin G. Luther, founder of the B. G. Luther Co., Inc., Worcester, Mass., builder of woodworking machinery, died at his home in that city, recently, aged 82 years. He had been active in business until a few years ago, since which time he had traveled extensively.

William Wakely, head of the metal department of the Taunton-New Bedford Copper Co., and for more than 50 years identified with the copper business in Taunton, Mass., died at the Morton hospital in that city, Feb. 25, in his 75th year. He was known widely as an expert in metal mixing processes.

Daniel Nichols Davis aged 70 years, a member of the Warner Gear Co., Muncie, Ind., died recently at Martinsville, Ind., where he had gone because of ill health. Mr. Davis was born in Victoria, Wales, in 1851, and upon coming to America engaged in the rolling mill business at Terre Haute for some years. Some years ago he became connected with the Warner Gear Co.

Benjamin S. Law, aged 65, who conducted a brokerage business, in Pittsburgh, dealing in safes, died March 2 at his home in that city. He was born in New Castle, Pa., but located in Pittsburgh many years ago when he became affiliated with the Barnes Safe & Lock Co. He later went with the Manganese Safe Co., but for several years has been in business for himself.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

THE Schartow Iron Products Co., Racine, Wis., has recently been organized by F. E. Schartow, until now president of the Schartow Mfg. Co., South Milwaukee, Wis., manufacturing saddlery hardware and harness chains. The new company has broken ground for a factory in Racine, which will be ready about April 1. It will make a general line of saddlery and harness hardware and automobile accessories. Mr. Schartow established the Schartow Mfg. Co., in Racine in 1909. The plant and offices were moved to South Milwaukee a year and a half ago, interests identified with the Stowell Co., malleable founder, having purchased the principal interest. A short time ago, Mr. Schartow sold his holdings and retired. The name since has been changed to the Midland Co., with R. A. Nourse as president; T. E. Ward, vice president, and C. P. Nourse, secretary and treasurer. R. A. Nourse is vice president and general manager of the Stowell Co.

* * *

THE capital stock of the Stanley Insulating Co., Great Barrington, Conn., has recently been purchased by a syndicate. One of the members of this syndicate is the Landers, Frary & Clark Co. of New Britain, Conn. There will be no change in the personnel of the company.

* * *

ADVICES have been received from the Carl Pick Co., West Bend, Wis., to the effect that its main reason for recently increasing its capital stock was to make additions to its present equipment. This has been found necessary as the result of the big demand for the company's products. Just what machines and machine tools the company will purchase, as yet has not been decided.

* * *

AT THE annual meeting of the stockholders of the Billings & Spencer Co. Hartford, Conn., held recently, J. B. Sehl was elected to the board of directors in place of the late Charles E. Billings, and the other directors were re-elected as follows: C. M. Spencer, Fred P. Holt, Silas Chapman Jr., E. H. Stocker, L. D. Parker, Lucius F. Robinson and Ferdinand Richter. The former officers were re-elected as follows: President, Fred C. Billings; vice president and treasurer, L. D. Parker; secretary, F. H. Stocker; assistant secretary, F. H. Stocker; assistant treasurer, Albert W. Gray; second vice-president and factory manager J. B. Sehl.

* * *

AIRPLANE accessories and motor parts will be manufactured by the Areo Mfg. Co., 40 Nassau street, New York, which was recently organized. Officers are: vice president and general manager, Victor W. Fitch and secretary-treasurer, E. O. Dick. No definite building plans have as yet been formulated. The officers of the company have been associated with the aircraft industry since the start of the war.

* * *

WORD has been received from the Sydney Foundry & Machine Works, Ltd., Sydney, N. S., that it plans extensions to its marine plant. These will include the installing of a marine railway capable of handling ships up to 2500 tons deadweight. At present the company does not plan to purchase any new equipment, but may be in the market later on. Work on the plant improvements is to be started this month.

* * *

DESIGNING, manufacturing and erecting of automatic coaling stations for railroads, is the business engaged in by the Howlett Construction Co., 208 Sohrbeck building, Moline, Ill., which was recently incorporated. Although but having taken out a charter but recently, the company was originally organized in 1914. Officers are: President, A. E. Montgomery; vice president and engineer, W. E. Howlett; secretary and treasurer, S. M. Howlett and assistant secretary and treasurer, M. H. Rice.

* * *

THE Janesville Molding Sand Co., Janesville Wis., is now under the management of John F. Pember and Thomas W. Nuzum, who have purchased the interests of Henry L. and Alva H. Maxfield. The company owns and operates a large tract in the town of Janesville which produces a high grade of molding sand for foundry purposes. Extensive development of the tract will be undertaken to meet increased requirements from casting shops throughout the middle western territory.

* * *

RECENTLY organized with $100,000 capital stock, the Lilliston Harvester Co., Albany, Ga., will manufacture peanut pickers, oat threshers, hay balers, stalk cutters, gasoline and kerosene engines, cane mills and other implements. In addition the company will operate a general foundry and machine shop. The company has a plant consisting of five buildings containing approximately 33,000 square feet of floor space.

* * *

THE George H. Smith Steel Casting Co., 500 Clinton street, Milwaukee, has placed an order with the Pittsburgh Furnace Co., 217 Sycamore street, Milwaukee, for a 3-ton electric melting furnace of the Moore type, equipped with an Allis-Chalmers transformer. The installation is expected to be completed by May 1.

* * *

TO PROVIDE additional working capital for the development of its spring business, the capital stock of the Garden City Spring Works, 2300 Archer avenue, Chicago, recently was increased to $500,000. The company has become the sole licensees under the Dilley patents for the manufacture of self-oiling springs for the replacement trade, and it anticipates a large business in this line.

* * *

ADVICES have been received from the Nashua Machine Co., Inc., 39 Elm street, Nashua, N. H., to the effect it is a newly organized compnay, which has taken over the business of the Nashua Machine Co., whose plant was recently damaged by fire. The new organization will continue the manufacture of the Bundy tilting steam traps. It is not its intention to build a new plant as it has purchased a large building, which it is now equipping with new and modern machinery. Officers are: President and general manager, John Sabin; vice president and superintendent, F. C. Sabin and treasurer, Eaton D. Sargent.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

FOLLOWING the annual stockholders meeting of the Crescent Refractories Co., Curwensville, Pa., announcement was made of the merger of the George S. Good Fire Brick Co., and the Clearfield Clay Working Co., with the Cresent Refractories Co.'s properties. Consolidation of these properties brings together three important Pennsylvania fire clay and coal holding properties. The output of the plants now operated by the corporation reaches 24,000 brick per day and marks a forward step in the fire clay industry of this section of the country.

* * *

THE Keokuk Electro Metals Co., Keokuk, Iowa, has extended its plant and is now producing silvery iron as well as bessemer ferrosilicon. The added capacity made necessary by the war has been utilized for silvery and bessemer ferrosilicon.

* * *

THE office managers of the several district offices of the Cutler-Hammer Mfg. Co., Milwaukee, recently were in attendance at a general sales meeting at the home offices. The meeting was held under the direction of W. C. Stevens, sales manager.

* * *

AT THE annual meeting of the Millers Falls Co., Millers Falls, Mass., manufacturer of tools, the following officers were elected: President, Philip Rogers; vice president, J. W. Smead; treasurer, G. W. Nims and directors, E. P. Stoughton, G. W. Eddy, J. W. Smead, W. G. Stebbins and Philip Rogers.

* * *

FORMATION of the Zeller Lacquer Mfg. Co., Inc., 111 Broadway, New York, has been announced. The company will manufacture lacquers, thinners, enamels, solutions and solvents. Organizers of the company are Hugo, Richard and Gustav Zeller, who recently resigned as president, treasurer and general manager; vice president, secretary and plant manager and assistant secretary, assistant plant manager and chief chemist, respectively, of the Egyptian Lacquer Mfg. Co. Associated with the Messrs Zeller, in the new enterprise, will be Edwin M. Squier, former president and now director of the New Jersey Zinc Co.; Hector W. Thomas, senior partner of the law firm of Thomas, & Houghton, New York, and Harry W. Mack, formerly with the war trade board, and now a partner in Thomas & Houghton.

* * *

COIL wire springs made from wire up to ½-inch in diameter, will be manufactured by the Superior Spring Co., Springfield, O., which was recently organized. The equipment will be modern in every respect. Complete details will be announced later. B. F. Downey is secretary and treasurer of the company.

* * *

THE business of Ford & Kimball, Concord, N. H., brass founders, has been reorganized with Ralph A. Benjamin as manager, and Nathaniel G. Shaw as treasurer. During the year just past, the company lost by death, its president, Benjamin A. Kimball; its manager, Henry A. Kimball and its treasurer, Luther W. Durgin.

* * *

WORD has been received to the effect the Balch Body Corp., Utica, N. Y. has more than tripled its floor space and is now in a position to take care of all stock bodies for the truck manufacturer. The company is in the market for body accessories. It can turn out 25 bodies per week. Dan F. Decker is secretary of the company.

* * *

OFFICERS were elected at the recent stockholders meeting of the Universal Pattern & Model Co., Inc., Hartford, Conn., maker of metal patterns. The officers are: President, Edwin W. Putnam; vice president, Everett M. DeLong; secretary, Charles E. Baker and treasurer, Edward S. Goodwin. These men also compose the board of directors.

* * *

ALBERT WALTON, industrial engineer, has returned to consulting practice and has opened offices at 1137 Commercial Trust building, Philadelphia and 639-640 Court Square building, Springfield, Mass., under the firm name of Walton & Wright, industrial engineer and manufacturing accountant. The organization will specialize in work for metal, wood and allied industries and for textile industries of all kinds. Mr. Walton has secured the collaboration of civil, mechanical and metallurgical engineers, and expert accountants in general and specialized lines.

* * *

ELECTION of officers was made at the recent annual meeting of the Winsted Hardware Mfg. Co., Winsted, Conn. Officers elected are: President, J. S. Frazee; vice president, T. H. Bronson; treasurer, E. A. Frazee; secretary, Arthur A. Griffin and directors, J. S. Frazee, T. H. Bronson, E. A. Frazee, L. W. Tiffany and George F. Drake.

* * *

ADDITIONAL equipment, in the nature of wire-driving and cold-drawing machines, has been installed at the plant of the Alloy Metal Wire Co., New York. This was done to care for the increased volume of business in the manufacture of resistance wires, pure nickel, monel metal, etc. The company recently increased its capital stock from $100,000 to $200,000.

* * *

TO PROVIDE means to enable it to engage in the manufacture of a new line, namely the making of steel drums, the Celina Mfg. Co., Celina, O., recently increased its capital stock from $25,000 to $75,000. It has purchased the necessary equipment, mainly from the Niagara Machine & Tool Works, Buffalo, and will be in production some time in April or in May.

* * *

COMMERCIAL refrigerators is the chief product of Ottenheimer Bros., Baltimore, which was recently incorporated, with a capital stock of more than $600,000. The company has been in operation for more than 50 years and during that time the company's holdings have grown continually. Recently it secured two additional properties in Baltimore. These plants were improved, remodeled and re-equipped and additional buildings erected. The main reason for incorporating was to enable many of the company's executives and employes to obtain an interest in the business. This is in keeping with the modern policy of the company. Officers and directors are: President, Reuben E. Ottenheimer; vice president, Bernard M. Ottenheimer and secretary-treasurer, Samuel M. Ottenheimer.

More Steel Is Shipped Overseas

Exports in January Aggregate 542,476 Tons, Second Highest Monthly Total in Four Years—Rails, Bars, Tin Plate, Wire Products, Shapes and Pipe Show Large Gains—Imports Increase Slightly

MORE iron and steel products were exported from the United States in January than in any single month since January, 1917, excepting June, 1919. Showing an increase over the tonnage exported in December, the January volume indicates that shipments against old orders have been holding up despite the sluggish new business in the export market at that time.

The tonnage exported in January was 542,476. This is exclusive of pig iron exports, figures for which were not complete when a preliminary summary of the month's iron and steel shipments was prepared. The total tonnage is greater than that exported in December by 42,896 tons, 208,962 tons more than were shipped overseas in January, 1920, 271,600 tons larger than in January, 1919, and 52,217 tons more than in January, 1918.

In January, 12 products showed a decrease as compared with December and 13 a gain. The products showing losses in January totaled 35,178 tons less than in December and were scrap, semifinished steel, hoops and bands, plates, barbed wire, nails, horseshoes and radiators. The products gaining over December represented an amount 78,074 tons larger, giving the net difference of 42,896 tons.

Steel rails, steel bars, plates, sheets, tin plate, wire products other than barbed wire, pipes and fittings and structural steel maintained their heavy volume of shipments which has been characteristic of these products for several months. Rails gained 6953 tons over December, steel bars 4495 tons, structurals 11,241 tons, tin plate 13,591 tons and pipes and fittings 30,966 tons.

Comparing steel exports in the seven months ending with January with a corresponding period ending July 31, the tonnage was 3,193,168, as against 2,340,099, respectively. This compares with 2,274,975 tons in the seven months to Jan. 31, 1920; with 2,415,545 tons to July 31, 1919; with 3,045,453 tons to Jan. 31, 1919; with 2,394,654 tons to July 31, 1918; and with 3,485,021 tons to Jan. 31, 1918. In other words, the seven months period just ended was the best of any similar period since Jan. 31, 1918.

Imports of iron and steel in January totaled 17,104 tons, an increase of approximately 2000 tons over December which was the lowest since February, 1919. These figures are exclusive of the imports of the various alloy ores which, with ferroalloys, in January totaled 51,199 tons, compared with 66,883 tons in December and 28,533 tons in January, 1920.

Iron ore imports in January amounted to 87,934 tons. This compares with 123,398 tons in December and 88,881 tons in January last year.

IMPORTS AND EXPORTS

Gross tons

	1921		1920	
	Imports	Exports	Imports	Exports
Jan.	17,104	542,476	45,796	333,514
Feb.	.....	.....	36,491	308,128
March	.....	.....	38,377	426,448
April	.....	.....	29,681	395,583
May	.....	.....	29,125	419,064
June	.....	.....	40,549	392,780
July	.....	.....	32,742	419,230
Aug.	.....	.....	58,335	431,519
Sept.	.....	.....	31,825	408,605
Oct.	.....	.....	39,797	451,972
Nov.	.....	.....	50,995	434,290
Dec.	.....	.....	15,120	499,780
Total.	17,104	542,476	421,375	4,933,924
	1919		1918	
Jan.	16,932	370,876	12,475	490,259
Feb.	11,819	340,623	12,940	432,465
March	17,750	367,314	14,312	380,062
April	16,561	402,653	11,247	463,035
May	18,136	414,029	14,387	488,515
June	21,761	562,954	13,913	418,178
July	28,258	287,685	11,789	457,118
Aug.	28,990	396,112	12,862	511,782
Sept.	37,492	363,618	9,013	473,116
Oct.	40,698	302,362	15,552	426,458
Nov.	43,855	336,959	11,329	439,268
Dec.	39,797	254,767	28,445	357,753
Total.	322,264	4,397,295	168,264	5,338,019

IRON AND STEEL EXPORTS

Gross Tons

	—January—		Seven months ending January—	
	1921	1920	1921	1920
Pig iron	.....	18,468	*116,265	166,006
Scrap	5,849	4,234	165,653	26,583
Steel billets, ing. & bl'ms.	315	19,937	78,901	170,416
Wire rods	3,444	8,815	54,890	55,324
Steel rails	59,739	44,449	372,433	316,375
Steel bars	68,282	43,763	389,958	318,919
Iron bars	6,877	1,797	34,508	19,303
Struc. iron and steel	74,737	27,550	367,751	166,817
Hoops, bands and scroll	3,435	3,745	29,710	21,853
Galv. sheets and plates	11,931	6,233	67,006	52,353
Iron sheets and plates	2,608	3,531	18,904	21,070
Steel plates	110,479	75,588	595,262	366,542
Steel sheets	18,291	10,032	110,489	84,312
Ship, and tank plates, punched and shaped	4,167	3,931	27,148	11,722
Tin and terne plate	34,544	20,579	138,459	102,505
Barbed wire	9,755	5,881	77,673	63,036
All oth. wire	25,979	7,903	140,044	97,315
Wire nails	8,323	4,590	65,732	38,444
Cut nails	411	34	3,326	900
All oth. nails incl. tacks	1,177	554	8,005	5,182
Pipes and fittings	83,121	17,331	289,980	137,348
R. R. spikes	2,067	738	10,143	9,405
Bolts, nuts, rivets	6,595	2,080	25,888	16,963
Horseshoes	84	69	1,238	1,654
Cast radiators	266	1,682	3,802	4,628
Total	542,476	333,514	3,193,168	2,274,975

*Six months to Jan. 1.

IRON AND STEEL IMPORTS

(Gross Tons)

	—January—		Seven months ending January	
	1921	1920	1921	1920
Pig iron	3,755	23,955	92,633	98,561
Scrap	12,156	17,120	75,082	141,463
Bar iron	113	303	3,196	1,479
Ingots, blooms and billets	719	3,130	6,973	14,318
Struc. shapes	25	169	1,060	754
Rails	147	754	28,429	7,156
Sheets & plates	54	177	1,021	771
Tin and terne plate	65	42	260	213
Wire rods	70	146	4,251	405
Total	17,104	45,796	212,905	265,120

IMPORTS VARIOUS ORES AND FERROALLOYS

(Gross Tons)

	—January—		Seven months ending January	
	1921	1920	1921	1920
Ferromanganese	1,107	2,771	39,098	20,481
Ferrosilicon	213	1,431	5,951	10,115
Manganese ore	49,699	21,463	440,094	128,822
Tungsten-bearing ore	.....	285	930	4,665
Nickel ore	180	2,583	16,379	14,244
Total	51,199	28,533	502,452	178,327

IRON ORE IMPORTS

(Gross Tons)

	—January—		Seven months ending January	
From	1921	1920	1921	1920
Spain	.....	2,498	26,496	23,743
Sweden	12,776	6,366	55,825	38,925
Canada	40	611	18,562	4,652
Cuba	57,187	79,288	485,510	282,312
Oth. countries	17,931	118	170,589	16,464
Total	87,934	88,881	756,982	366,096

EXPORTS PIG IRON AND SEMIFINISHED

Gross Tons

	1921		1920	
	Pig iron	Semi-finished material	Pig iron	Semi-finished material
Jan.	.....	315	18,468	19,937
Feb.	.....	.....	15,689	22,693
March	.....	.....	22,815	30,444
April	.....	.....	14,608	19,032
May	.....	.....	13,032	16,370
June	.....	.....	17,105	29,811
July	.....	.....	29,647	17,243
Aug.	.....	.....	22,645	20,920
Sept.	.....	.....	22,724	18,113
Oct.	.....	.....	17,267	11,853
Nov.	.....	.....	13,929	7,042
Dec.	.....	.....	10,055	3,415
Total.	.....	315	216,828	216,873
	1919		1918	
Jan.	36,757	11,594	20,581	195,385
Feb.	20,925	9,900	10,711	166,807
March	22,158	8,176	9,849	144,443
April	17,038	11,488	11,282	177,128
May	37,087	20,771	22,567	159,299
June	39,785	46,016	22,896	139,377
July	42,327	21,318	20,265	139,612
Aug.	36,071	36,162	26,028	189,851
Sept.	18,991	37,513	34,494	135,450
Oct.	14,108	20,713	35,452	125,023
Nov.	21,429	13,211	30,825	149,924
Dec.	14,612	21,538	24,625	63,890
Total.	321,261	258,400	269,575	1,786,189

Men of the Machinery Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

A. S. BALDWIN has resigned his position as manager and chief engineer of the Poole Engineering & Machine Co., Baltimore. Mr. Baldwin formerly was manager of one of the Westinghouse plants in Pittsburgh and previous to that was general manager of the Alberger Pump & Condenser Co., Newburgh, N. Y. and general superintendent of the Driggs-Seabury Ordnance Corp., Sharon, Pa.

George Thomas, New York, has succeeded E. J. Slattery as assistant treasurer of the Stanley Insulating Co, Great Barrington, Mass.

H. Robert Bye, superintendent of the crankshaft department of the Leland-Gifford Co., Worcester, Mass., for 15 years, has resigned.

C. L. Close, director of the bureau of safety, sanitation and welfare of the United States Steel Corp., 71 Broadway, New York, has returned from a vacation in Florida.

Capt. Edward T. Hine has resigned as associate secretary of the Springfield, Mass., chamber of commerce to join the sales engineering department of the Gilbert & Barker Mfg. Co., West Springfield, Mass.

William J. Hewes foreman of the chuck department of the Whitin Machine Works, Whitinsville, Mass., has recently been appointed assistant to W. O. Aldrich, assistant superintendent of the company.

A. Campbell White, 310 Canal Bank annex, New Orleans, has been appointed district representative of the Falcon Steel Co., Niles, O., with territory embracing Louisiana, Mississippi, Alabama, Georgia, Florida and Tennessee.

Robert C. Weller has been appointed general sales manager of the Lakewood Engineering Co., Lakewood, O., to take effect at once. Mr. Weller whose headquarters will be in Cleveland will have complete charge of the sales work.

John F. Tinsley, vice president and general manager of the Crompton & Knowles Loom Works, Worcester, Mass., has been elected a director of the Worcester chamber of commerce and also of the Park Trust Co. of that city.

William Roberts, formerly with the engineering departments of the Rolls-Royce of America, Ltd., Springfield, Mass., and the Fisk Rubber Co., Chicopee, Mass., has opened engineering offices at 457 Main street, Springfield, Mass.

Gov. James Hartness, of Vermont, president of the Jones & Lamson Machine Co., Springfield, Vt., has signified his intention of attending the 150th anniversary celebration of the incorporation of the town of Winsted, Conn., Aug. 17. Gov. Hartness worked in Winsted before going to Vermont.

N. J. Grace, Cleveland, has been appointed superintendent of the Garford Manufacturing Co., Elyria, in which capacity he will have charge of the entire personnel in the polishing and plating plant. Mr. Grace has for several years been foreman at the National Safe Co., Cleveland.

Chairman E. H. Gary of the United States Steel Corp., is to sail for Europe either this week or next, presumably in connection with the proposed organization of an international association of steelmakers. At a recent meeting of the directors of the American Iron and Steel institute, Judge Gary was empowered to direct his efforts toward the carrying out of this plan.

Peter Lowe has resigned as sales manager of the Kempsmith Mfg. Co., Milwaukee, Wis., and expects to take a rest to recuperate from overwork. He was succeeded on March 1 by Robert McC. Carter, for the past two years sales manager of the Giddings & Lewis Mfg. Co., Fond du Lac, Wis., machine tool manufacturer. Previously Mr. Carter was connected with the Gisholt Machine Co., Madison, Wis.

R. M. Marshall has been made general manager, Leon A. Ehrman superintendent of blast furnaces and H. Frank Shaffer, general master mechanic of the American Manganese Mfg. Co., Dunbar, Pa. Mr. Marshall formerly was superintendent of blast furnaces, Mr. Ehrman formerly assistant superintendent of furnaces and Mr. Shaffer formerly furnace master mechanic, all of the Midvale Steel & Ordnance Co., Coatesville. Pa.

Y. M. Karekin, for 15 years associated with the former Westinghouse, Church, Kerr & Co. and with Dwight P. Robinson & Co., 125 East Forty-sixth street, New York, upon consolidation of the two concerns, has estal-lished temporary offices at 644 West 173 street, that city, as consulting engineer. Mr. Karekin's former association was in capacity of engineer in charge of industrial developments, especially railroad and terminal construction.

G. S. Crane formerly manager of the Cleveland office of the Cutler-Hammer Mfg. Co., Milwaukee, Wis. has become manager of controller of sales in the main office. Other changes announced is the appointment of L. B. Timmerman to have charge of the Cleveland office; of R. I. Maurer to become branch manager of the Cincinnati office; and of E. N. Lightfoot to the management of the heating department with complete charge of the sale of electrical heating devices.

R. J. Emerich, secretary and treasurer of the W. W. Sly Mfg. Co., Cleveland, has been elected president and general manager succeeding the late W. C. Sly. George P. Steel as treasurer and S. C. Vessy as secretary succeed Mr. Emerich. George J. Fanner continues as vice president and, with the other officers and Paul Ryan, constitutes the board of directors. L. Bottomley succeeds the late G. K. Fanner as superintendent. Mr. Sly and Mr. Fanner were killed defending the company's payroll from bandits Dec. 31, 1920.

Carl G. Barth, who for many years has specialized in the Taylor system of scientific management and particularly the improvement of shop processes, has joined the engineering staff of Moses, Pope & Trainer, Inc., 366 Fifth avenue, New York. This company also has made an arrangement with the institute of industrial research, Washington, by which it enjoys the use of the extensive laboratories of the institute and the services of Dr. Allerton S. Cushman and Dr. G. W. Coggeshall, metallurgical and chemical engineers.

Men of the Iron Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

ANDREW W. Mellon, who has been appointed secretary of the treasury by President Warren G. Harding, in addition to being head of the Mellon National bank, Pittsburgh, is prominently identified with a large number of industrial corporations connected directly or indirectly with the iron and steel industry. He has resigned as a director in the following companies: Aluminum Co. of America, Aluminum Ore Co., American Locomotive Co, Baltimore Car & Foundry Co., Bulter Bolt & Rivet Co., Butler Car Wheel Co., Carborundum Co., Crucible Steel Co. of America, Forged Steel Wheel Co., Koppers Co., McClintic-Marshall Co., McClintic-Marshall Construction Co., Middletown Car Co., Minnesota By-product Coke Co., Pittsburgh By-product Coke Co., Pittsburgh Coal Co., Pittsburgh Model Engine Co., Pressed Metal Radiator Co., Riter-Conley Co., Riter-Conley Mfg. Co., Seaboard By-Product Coke Co., Standard Motor Truck Co., Standard Steel Car Co., Steel Car Forge Co., Union Shipbuilding Co., United States Aluminum Co., and the Verona Steel Castings Co.

Mr. Mellon was born March 24, 1855 and received his higher education in the University of Western Pennsylvania, now the University of Pittsburgh, from which he graduated with the class of 1873. One year later he entered the banking house of T. Mellon & Sons and when his father, Judge Thomas Mellon, retired the following year, was made a partner. In July, 1902, the partnership, including Mr. Mellon's brother, R. B. Mellon, entered the national banking system as the Mellon National Bank with Andrew W. Mellon as president. In October, 1899, Andrew W. and R. B. Mellon, with associates, organized the Union Trust Co. and Union Savings bank. In 1913 the Mellon Institute of Industrial Research was founded by the Mellon brothers as a memorial to their father, its object being skilled investigations and research work into physical science and technology as an aid to industry. It is independent as to its resources and no financial profits accrue from its investigations. Mr. Mellon is president and chairman of the finance committee of the Carnegie institute and president of the finance committee of the University of Pittsburgh. He was active in war work as a member of various state and national bodies.

Norma Snow has been appointed foundry superintendent of the Covel Mfg. Co., Benton Harbor, Mich.

Charles Hart, president of the Delaware River Steel Co., Chester, Pa., has sailed for Europe.

George W. Borton, president of the Pennsylvania Crusher Co., Philadelphia, sailed Feb. 26 for a brief trip to Great Britain and the continent.

W. S. Pilling of Pilling & Co., Real Estate trust building, Philadelphia, is in Florida and is expected to return about March 10.

ANDREW W. MELLON

C. C. Lee has taken a position as foundry superintendent with the Stroud Motor Mfg. Association, Ltd., San Antonio, Tex.

Bryan Robertson has retired as manager of steel sales for Fairbanks & Co., Wade building, Cleveland, jobbers of pig iron, steel, coal and coke.

R. E. Lundgren, Chicago manager for the Mathew Addy Co. during the past four years, has been made a vice president of the company.

S. C. Dickey recently resigned from the Republic Iron & Steel Co., with which he was associated in the sales department at its home office, Youngstown, O.

A. E. Ulrich, formerly in charge of export machinery sales for Joseph T. Ryerson & Co., Chicago, with offices at 30 Church street, New York, will sail shortly for Japan where he will represent the company's interests.

E. E. Walker, president of the American Malleable Castings association, has been named national councillor of the association to represent that body in the Chamber of Commerce of the United States.

W. L. Anderson has been appointed general manager of the National Shipbuilding Co., Ltd., Goderich, Ont. Formerly he was connected with the Sturtevant Co. and Goldie & McCullich, Galt, Ont.

Henry Ford, head of the Ford Motor Co., Detroit, has been elected president of the Detroit, Toledo & Ironton railroad which recently was acquired by the Ford interests. Mr. Ford succeeds Joseph A. Gordon who remains on the board of directors.

Robert Field, who recently withdrew from the Field & Bruner Co., Kokomo, Ind., dealers in pig iron, steel and fuel, has arranged to represent several furnaces, coal operators and coke producers and has taken temporary offices in the Hotel Edward, Indianapolis.

Andrew G. Hill, president of the Malleable Iron Range Co., Beaver Dam, Wis., since 1902, retired from office at the annual meeting in order to be relieved of the principal management responsibility. Fred W. Rogers, vice president, was advanced to president. John C. Zander, treasurer and Arthur S. Bowron, secretary, are continued in these offices.

William C. Wilson, formerly connected with the Taylor-Wharton Iron & Steel Co. and William Wharton Jr. & Co., in the capacity of manager of sales in the northeastern territory, has become associated with the Pittsburgh Screw & Bolt Co., and will be located at the latter's New York office, 50 East Forty-second street.

Gary Defends Profits and Prices

Steel Corporation Head Declares Comptroller Williams Is Inaccurate and Unjust in His Attacks Upon Corporation—Quotes Fundamental Business Principles and Discusses Corporation's Efforts in Behalf of Lower Prices

CHAIRMAN E. H. Gary, of the United States Steel Corp., in lengthy communication just made public denies unreasonable profits were made by the Steel corporation and other steelmakers under prices fixed by the government during the war and subsequently by the steel corporation on the basis of the industrial board level of prices. His letter is a reply to John Skelton Williams, comptroller of the United States treasury who in a recent communication to Judge Gary and published in the daily press, attacks the prices and price policy of the Steel corporation for the past three years and calls upon the latter to make substantial reductions at this time. The comptroller of the treasury was inaccurate and unjust, Judge Gary said.

Judge Gary stated he had sought lower prices than had been fixed by the war industries board during the war; that the industrial board prices, virtually government prices, had been maintained by the corporation when all other producers were charging considerably more for their steel; that, as intended, the war tax laws had taken any "unreasonableness" out of the war profits; that business principles, long practiced by industrial organizations in the country and by the government in its business transactions, guided the corporation in its book keeping and profits policies.

Recalls Armistice Period

The letter in part follows:

"Soon after the armistice, which was signed Nov. 11, 1918, I asked the leading steel manufacturers of the country to meet for the purpose of discussing the question of reducing selling prices for recommendation at a meeting which had been called by the war industries board for Dec. 9. After a long and interesting discussion it was finally voted to refer the subject matter to a subcommittee with full power. That committee met and decided to make a reduction of between $5 and $6 per ton, and these prices were adhered to until March 21, 1919. At that time the steel manufacturers, through their representatives, met the industrial board, appointed by Secretary of Commerce Redfield by the approval of the President, and after a conference of two or three days, agreed to make further reductions of about $6 per ton. These prices have been strictly adhered to by the corporation from that time until the present, notwithstanding wages in February, 1920, were increased about 10 per cent and also freight rates have been increased about 35 per cent or more.

"During a large portion of this time many of the steel products have been sold at about or below actual mill cost. Taken as a whole, however, the Steel corporation has been able to make some profits and, I am glad to say, has been permitted to maintain its wage rates. I believe the steel industry generally may be counted upon to do the fair and reasonable thing with reference to selling prices as well as the wages of workmen. Circumstances beyond their control will, of course, determine what shall be done from time to time.

"You challenge my statement that so far as our corporation is concerned we have endeavored to be reasonable in our price policy. And the only argument you present to sustain your position is to point to profits results for the year 1918.

"In your criticism of steel prices, both in your annual report and your letter, you entirely ignore a leading and controlling factor which had the greatest bearing upon the issue, namely: That in 1917, shortly after the entrance of the United States into the European war, the United States government fixed the maximum prices which could be charged by all producers of steel, applying to that industry the same rule it extended to many other basic industries and commodities. By inquiring of Mr. Brookings, the chairman of the price-fixing committee of the war industries board, you will learn that I always urged lower prices than those which were generally claimed. This condition prevailed to the end of 1918. The plan adopted by the government of fixing maximum prices was designed to intensify production to aid in "winning the war," to bring out the maximum production of all interests able to produce; and to accomplish this prices necessarily had to be fixed at figures which induced the high cost as well as the low cost producer to operate. That this plan would result in some interests making very large profits was fully recognized by congress in enacting the excess profits tax laws which gathered in for the government, especially in 1917 and 1918, a *very large* proportion of profits earned in excess of comparatively low rates of return on investment employed. If, therefore, you would criticise the profits made by this corporation in 1917 and 1918, profits being the corollary of prices received, and contend they were unduly large, and charge that such results implied profiteering prices, I submit your criticism should be directed not against the price policy of this corporation but to the price-fixing policy adopted by the government during the years in question.

"Now, as to the postwar period, the years 1919 and 1920. As stated in remarks to the representatives of the New York press, quoted at the beginning of this letter, shortly following the armistice in November, 1918, and immediately after government fixed maximum prices were canceled or withdrawn, this corporation and other steel manufacturers reduced prices which by March 21, 1919, had reached a total average reduction of about $10 per ton. From Jan. 1, 1919, there have been no governmental restrictions on steel prices and the market price for steel has been influenced entirely by the law of supply and demand.

What Corporation Did

"Although, during 1920 in particular, many producers of steel, owing to the unusual demand in comparison with the ability of manufacturers to supply, were able to secure in many cases substantially higher prices than the price schedule established in March, 1919, this corporation has, as hereinbefore stated, adhered to that schedule; it has not asked or received higher base prices. It did not join in the wave of inflation of prices in most commodities which swept over the country in 1919 and 1920 notwithstanding wage increases, advances in prices of raw materials which it is required to purchase, heavy advances in freight rates, tax increases and increases in other general expenses, arising from this wave of inflation, added very largely to the cost of production, so largely in fact that at close of 1920 in a number of lines of products the margin between manufacturing cost and selling price is practically nil, in some cases cost exceeds selling price.

"But you may respond to the foregoing by saying that, nevertheless, the Steel corporation made large profits in 1919 and 1920; therefore, their prices have been of the profiteering type. Naturally, this opens up the question of what are fair and reasonable profits which an industry may earn before being subjected to the charge of profiteering. Opinions on this will differ, but it is a fundamental rule in business, I believe, that industrial capital should equitably be permitted to earn all it can under competitive conditions and provided it enjoys no special privileges. I submit to you that during the past two years the Steel corporation has not availed itself of this primary rule of business; it could have made larger profits than it did had it so elected but it limited its efforts in this direction to obtaining a return of profits not in excess of what it viewed was a fair and reasonable return on the investment value of its properties and resources.

"You say on page 6:

Dealers Statement Untrue

"By closing down mills and mines the output of steel and iron was reduced, approximately one-fourth the year following the armistice, in order that manufacturers and miners might obtain, because of the insistent and peremptory demand, the exorbitant profits realized during the war rather than the more moderate profits they would have had

to accept if a maximum output had been maintained."

"The foregoing statement of yours is, so far as this corporation is concerned, inaccurate and untrue in the reasons assigned for the fact that the output of steel in 1919 reached only about 75 per cent of capacity; and what I state of this corporation I am satisfied is true in respect of the operations of other steel and iron producers. You entirely overlook the controlling reasons which caused a lessened output of steel. The reasons you offer are so void of the truth in the situation to those acquainted with conditions that denial would be unnecessary except that the allegations appear in the report of a high and reasonable official of the government.

"You also make the following statement:

" 'The increase which has taken place in wages since the war does not excuse present prices for steel and iron products.'

"Wages are not the only element which enters into the cost of operation and production; there are many other items of expense. Therefore, assuming that your reference to wages is equally applicable to the entire cost of operation and that you are making your comparison between total cost prior to 1916 and at present, and prices in the earlier period and at present, I beg to state that your conclusion is not correct. You follow your statement, above quoted, with an analysis of the partial income results for year 1918 of a steel company (which in your letter you admit is this corporation) and which apparently is inserted to prove the correctness of your previous statement before quoted. You would, it seems, leave the reader with the impression that conditions and results in 1918 in respect of costs and selling prices prevailed today. Nothing could be further from the facts.

"And now taking up your analysis of our 1918 income results as analyzed in your letter of May 5, 1919, to Director General Hines. In your letter to me you state:

" 'These assertions of mine perhaps came under your observation. They stand uncontradicted and unchallenged after 22 months.'

"You start your analysis by stating that exclusive of certain specific appropriations, all as set forth in our annual report, which were made from earnings, the amount of the same for the year was $549,180,000.

"We are unable to check out how you arrive at this figure; your letter to Mr. Hines does not explain. However, stating the *net earnings* on the same basis you apparently have, the correct amount should be $543,485,393.

"From this total of net earnings you draw two conclusions, to-wit:

1st. That the corporation could have doubled the amount it paid its employes for wages and salaries in 1918 and still have had enough left to pay:

	Your figures	Correct figures per your logic
Interest charges	$29,821,000	$29,821,540
7% on preferred	25,219,000	25,219,677
5% on common	30,498,000	25,415,125
Sinking fund (bonds)	7,601,000	8,439,242
And a surplus of	3,378,000	1,926,285

"2nd. That the corporation could in 1918 have afforded to have reduced the price of all the steel it sold by $30 per ton and still earned enough to pay the charges on its debt and capital as above indicated.

"Now, as flat arithmetical statements, your conclusions are mathematically correct. But they are, I submit, shallow, spacious, misleading and viewed from a business and common sense standpoint inaccurate.

"In the first place in your calculations you have failed entirely to recognize allowances for depletion and deterioration, amounting to $33,117,398, which was reserved from net earnings in accordance with the practice and on the same basis this corporation has observed for years, and which allowance is universally recognized as a proper and necessary one to be made from earnings in order to arrive at *profits* and *profits earned*, rather than earnings received, is the essential result to be considered.

"Secondly, in arriving at your conclusions you omit making any allowances for federal income and profits taxes, for which we reserved $274,277,835 in 1918. Had you taken this figure and the one of 33 millions for depletion and depreciation into consideration in your calculation you would at once have reduced from $30 per ton to about $8 per ton the reduction in prices which according to your own method of figuring, the corporation could have cut its prices and still earned its fixed charges and 5 per cent on its common stock, but *no more*.

"You may say that income and profits taxes are not payable if not earned. But the normal income taxes would be payable on profits which your calculation would allow us, presumably in your opinion, reasonable profits; and not having allowed for this in your calculation we find another omission of some $12,000,000 per your own formula. However, the fact is that for 1918 the corporation did pay very nearly the total amount before mentioned and all in accordance with the government's program for financing the war. But under the conditions prevailing to include, as you have done, in earnings for the purpose of deducing therefrom whether unreasonable profits were made, the amounts which under the laws of the country were collected by an industry but paid over to the government, is, I charge, manifestly an unfair shuffling of figures, inaccurate as related to all the facts misleading and a distortion of the true conditions. In your letter to the di-

"If you say that notwithstanding allowing for charges for income and excess profits taxes, we still netted profits which were not fair and reasonable, simply because we still earned a very substantial amount in excess of 5 per cent on common stock, I would reply that I think you are too astute a man of affairs and business to hold for a moment that anything earned in excess of a low rate on issued capital stock necessarily indicates unreasonableness or profiteering. It seems hardly necessary for me to point out to you that the only just test of this issue must be based on the relation between profits earned and the investment in the properties. And measuring the problem by this yard stick I submit the following results, viz:

Profits earned for the investment in 1918 after providing for federal taxes, but before deducting special appropriations	$ 228,488,733
Investment at Dec. 31, 1917, as per annual	2,275,065,526
Per cent of profits earned on investment	10

"Does this indicate profiteering? It has been said that your common stock when issued was not represented by any cash value. I emphatically deny that any such condition prevailed, but if it were true, I present to you the figures of relationship of net profits to the investment in the properties not counting the common stock as originally represented by cash property value. And we have on that basis:

Net profits	$ 228,488,733
Investment	1,766,763,026
Per cent of profits on investment	12.9

"Taking everything into consideration concerning conditions prevailing during 1918, can any fair minded critic allege this degree of profit was exorbitant and unreasonable?

"The corresponding figures for 1919 of profits earned and invested capital stated on relatively the same basis as above figures for 1918, are:

		Per cent of profits
Net Profits	$ 183,947,180	
Invest. in properties	2,361,028,726	7.8
Invest., not counting common stock as originally represented by any cash property value	1,852,726,226	10

"I believe the foregoing lengthy review of the entire subject in issue answers completely and fairly your letter and the direct statements as well as the implications contained in your letter to Director General Hines, in your annual report and in your letter to me."

Says Position Supported

That a few business men of prominence have lost their heads and that, in consequence, orderly business progress temporarily has been interrupted, was stated to newspapermen by Chairman E. H. Gary of the United States Steel Corp. at his office in New York, March 2. Judge Gary said that while the Steel corporation is receiving some criticisms of its policy of maintaining prices, by far the majority of the expressions it receives are commendatory. He reiterated the intention of the Steel corporation to treat everyone and every interest justly. Judge Gary said in part:

"I am receiving large numbers of letters from various interests and from different viewpoints. Most of them are commendatory of the policy of the corporation during the last few weeks and months; and they are appreciated. A very few in number, comparatively, question our attitude, our action or lack of action. None is overlooked or ignored; much less resented. All are given careful and conscientious attention. Our decisions are based on a desire to treat fairly all who are interested in what we say and do.

"Taking everything into careful and deliberate consideration, we intend and shall endeavor to treat everyone and every interest justly, including our workmen, our shareholders, our customers, our competitors, and the general public, of which we are thankful and proud to be a part."

Tool Users Continue Inactive

Some Improvement Was Noted During the Past Week but Not of a Substantial Character —Mexican Inquiry Absorbs Sellers' Attention — Chile and Argentine Prospective Buyers — Prices Are Soft as Demand Continues Light

SLIGHT improvement has been noted in the demand for machinery and machine tools during the past week but sales as a rule have been confined to single machines. Inquiries have been on the increase but most of these are small except those for export some of which are especially large. Outstanding among inquiries is the one current in the East by the National Railways of Mexico, for miscellaneous equipment including machine tools, cranes, etc., through its offices, 233 Broadway, New York. Another inquiry for export is expected shortly from the Chilean government, which recently closed on a loan of $24,000,000, and W. R. Grace & Co., New York, is now figuring on a proposition in the Argentine. In the export market business seems to be showing more signs of life than it has for some time. It is understood substantial buying of tools has been done by oil companies operating in Mexico. The Standard Oil Co. of New Jersey has decided to buy the equipment for its proposed foundry in Roumania through its Roumanian offices, new inquiries being issued there, it is said.

Domestic business remains at a minimum. No large sales, so far as known have been made. An inquiry of fair size which is current is that of the Batavia Car Co., Batavia, N. Y., which has asked for lathes, drills, etc.

Prices continue on a downward trend, although manufacturers in general are holding to their old schedules. Despite this dealers report prices are very soft, it being possible to get fair concessions on a sizable order. During the past few days several leading manufactures have announced additional cuts ranging from 10 to 15 per cent.

Crane business in general is showing but little sign of activity. Nevertheless some business is being done, and considerable future business is indicated by the increasing number of inquiries current. Outstanding in inquiries is that of an eastern company which has asked for figures on 12 electric overhead cranes. Overhead crane orders during the week included one for two 10-ton cranes.

Mexican Equipment Inquiry Features in the East

NEW YORK, March 8.—Prospective buying for the railroads of Mexico is a feature in the local machine tool market. The National Railways of Mexico is receiving estimating figures on some miscellaneous equipment through its offices at 233 Broadway and a large amount of machine tools, cranes and other railroad equipment for Mexico is soon to be actively figured upon by Florian & Co., 52 Wall street. Including some second-hand cars and locomotives, now being negotiated for, this latter company expects to close on about $10,000,000 worth of equipment within the next 60 to 90 days. Substantial buying of machine tool equipment has been done by oil companies operating in Mexico, but these tools have been purchased in small lots.

With the Chilean government successful in negotiating a loan of $24,000,000 recently, it is expected buying for the Chilean railroads will develop soon. W. R. Grace & Co., 7 Hanover square, is figuring on a proposition in the Argentine and is getting estimates on certain types of equipment.

Although an improvement in domestic demand is reported in some quarters, no sizable inquiries are noted and buying continues practically at a standstill. Some sellers look for buying by the railroads, as a result of the passing of the Winslow-Townsend bill, allowing for partial payments to the railroads from the government guaranty fund. Though the railroads are obligated on practically all the money involved in these payments it is pointed out it may give the railroads a wider latitude in the matter of credit. Interest is shown in plans of union machinists in marine repair plants in this city to go on strike today in protest against a 15 per cent wage reduction. It is said that the walkout will effect 37 plants and involve 2000 machinists.

While details are lacking an eastern company is inquiring for figures on 12 electric overhead cranes. This is by far the largest new project to come up in this particular branch of the crane market; in fact, aside from this, there is little in the way of new inquiry and still less buying. Outstanding among overhead crane orders is one involving two 10-ton cranes, each equipped with two 5-ton trolleys and having spans of 65 and 85 feet, respectively, for the Barber & Ross Co., Washington. The business went to the Shepard Electric Crane & Hoist Co., Montour Falls, N. Y. J. K. Petty & Co. Inc., Philadelphia, purchased a 5-ton electric crane, with 50-foot span, for its Lebanon, Pa., plant. The Virginia-Carolina Chemical Co. is inquiring for electric overhead cranes for its subsidiary, the Rasin Monumental Fertilizer Co., Baltimore. It is reported that the navy department has but recently awarded a contract to the Whiting Corp., located at Harvey, Ill., for a 5-ton electric overhead crane, with 62-foot span, for the yard at Puget sound. The American Steel & Wire Co., Cleveland, purchased a 10-ton electric overhead crane from the Champion Engineering Co., Kenton, O. The National Lead Co., 111 Broadway, has purchased a 10-ton hand-power crane for its Atlantic Lead Works, Brooklyn, from the New Jersey Foundry & Machine Co., 90 West street.

An inquiry by W. R. Grace & Co., 7 Hanover square, for figures on 19 locomotive cranes is a feature of the conveying equipment market. The cranes are for Buenos Aires, and involve eleven 5-ton, three 2-ton, one 4-ton, one 10-ton and one 3-ton cranes. The Royale Brock Stone Co., Tren-

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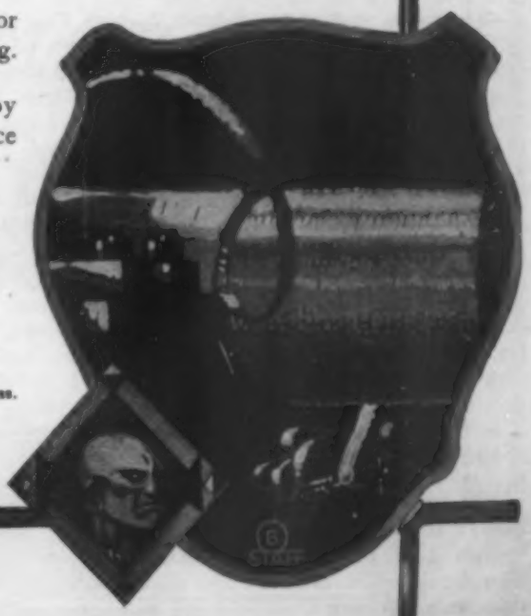

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ton, N. J., has purchased a derrick instead of the hand-power crane originally contemplated. The Bangor & Arostook railroad has bought a 120-ton wrecking crane from the Industrial Works, Chicago. Through the American Gas & Electric Co., the holding corporation, the Atlantic City Electric Co., Atlantic City, N. J., has purchased a used 25-ton Industrial locomotive crane.

Due to efforts of many foundries to broaden their lines, inquiries in the eastern foundry equipment market are more numerous. A number of these are for estimating purposes. No marked increase in buying is noted. New projects include several plants contemplated for erection in the Southeast. Work on the proposed plant of the Batavia Car Co., Batavia, N. Y., also is pending. Actual construction has started on the foundry of the White Fuel Oil Engineering Co., 742 East Twelfth street, New York. The Standard Oil Co. of New Jersey has decided not to purchase equipment in this country for its proposed foundry in Roumania. It is understood that new inquiries will later be issued, but through the Roumanian offices of the company in Roumania. The Newington Metal Goods Co., Hartford, Conn., is in the market for a foundry power press. Corning & Co., Albany, N. Y., wants two shears for shipment to Brazil, and have recently placed an order for a roll lathe with the Youngstown Foundry & Machine Co., Youngstown, O.

Tool Buying Further Subsides

BOSTON, March 8.—The machine tool market in New England after struggling to regain some of its activity in February has subsided and the past week was practically without a transaction of size. One of the large Boston dealers reports a quieter situation at present than at any time this year. Manufacturers still feel sure of an early buying movement along moderate lines. Used tools continue of chief interest and the small sales made have been for this class. The auction sale at Boston of the Wilton Machine Tool Co. equipment two weeks ago still has some market interest because of the resale of this machinery by dealers. In addition the names of original purchasers indicate points of at least moderate activity. Tool users prominent in the list of purchasers at that sale are Johnson & Bassett, Worcester, Kingsbury Mfg. Co., Keene, N. H., Davis & Furber, Andover, Mass., Noyes Buick Co., Boston, and John W. Bolton & Sons, Lawrence, Mass. Several sales of plant equipment are listed for the coming week. One is that of the Bristol Machine Tool Co., Bristol, Conn., covering 460 lots of machine tools of standard types. The International Piano Mfg. Co., Fall River, Mass., will sell its entire equipment at auction March 15. The list includes about 50 woodworking machines. Another list of woodworking machinery is to be sold March 15 at the Flora American Plywood Co. plant at Portland, Me.

The effect of the large number of used machines which are continually coming on to the New England market is pronounced. Prospective buyers are a little annoyed at the firm stand machine tool builders are taking against price reductions and for this reason are more willing to purchase used equipment than ever. Perhaps the greatest activity at the present time in the machine tool line is with the railroad repair shops, nearly all of which are starting repair programs. The Boston & Albany railroad is in the market for a 32-inch motor driven shaper and a 20-inch motor driven lathe.

Buyers Continue to Defer Action

PITTSBURGH, March 8.—Deferred action continues the rule among prospective purchasers of machine tools. New inquiries are few and the majority call for one machine only. Among those who are postponing purchases are the Carnegie Steel Co., the American Sheet & Tin Plate Co. and the Jones & Laughlin Steel Co. It is claimed that lower prices are anticipated in practically all cases and considerable disappointment is expressed over the fact no announcement was made in this connection at the meeting last week in Cleveland of the National Machine Tool Builders' association. By a few sellers it is doubted that a reduction would stimulate much buying at present, most users being content to get along with present equipment. Among prospective purchasers of machinery are the Commercial Machine Co., Dunkirk, N. Y., the United Auto Gear & Parts Co., Binghamton, N. Y., recently incorporated with $20,000 capital and the H. D. Shawkey Motor Co., Pittsburgh, which is erecting a repair shop.

While inquiries for used machinery continue to drift in to Pittsburgh sellers from all districts, considerable disinclination to place orders is noted. Among recent sales made by the McCoy-Brandt Machinery Co. is a bulldozer for a car shop in New York state. Somers, Fitler & Todd recently were able to move three machines from its floor, one drill press going to Washington, Pa., another to a user near Kittanning, Pa., and a saw to a West Virginia user.

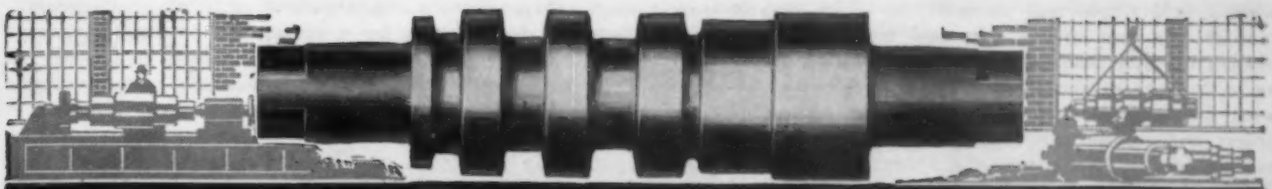
The inquiry rate on cranes apparently is declining. Some sellers report a limited number of new propositions involving single units but all of the larger lists continue in abeyance. The Heyl & Patterson Co., Pittsburgh, closed on one each 4 and 6-ton motor driven single girder cranes with 2-inch flange wheels for its new storage yard with the Pittsburgh office of the Northern Engineering Works, Detroit.

Buyers Continue Out of Market

CHICAGO, March 8.—Two factors are plainly defined in the present market for machine tools. One is that buyers are holding off partly because their present plant facilities are only partly employed, and partly because they believe prices must be much lower before buying will be started. The other factor is the attitude of manufacturers of machine tool equipment. The general sentiment gathered at a meeting of manufacturers a few days ago was strongly toward maintaining present prices under the impression that reductions would not stimulate buying. In opposition to this stand, a few manufacturers are reducing their prices or revising them to somewhat lower levels, the usual change being about 15 per cent downward. These changes are not sufficient to affect the entire market and up to this time not enough have made the change to cause others to follow. This fact is largely due to the absence of inquiry and lack of active competition. A manufacturer of milling machines at Cincinnati is revising its list and during this process all quotations by sellers must be submitted to the home office before being made firm. The general decline in equipment made by this company is about 15 per cent. One manufacturer of a line of punch presses has reduced his price about 20 per cent, which puts him in a much better position than competitors. In general February produced a heavier volume of orders and deliveries than January, but some sellers are free to admit this was caused by the Santa Fe placing a major part of its inquiry. March is not showing signs of keeping up the record. Inquiry is exceedingly dull and selling representatives who have combed the territory for orders find that most manufacturing institutions are running at 15 to 30 per cent and do not need equipment.

Increase In Inquiries Is Noted

MILWAUKEE, March 8.—A large increase in inquiries for machine tools has been the feature of the trade during the first week of March. A better feeling appears to be developing. Not any appreciable volume of new orders has developed so far. Inquiry runs principally along the line of single tools, with here and there a request for quotations on two or three machines. New business like-



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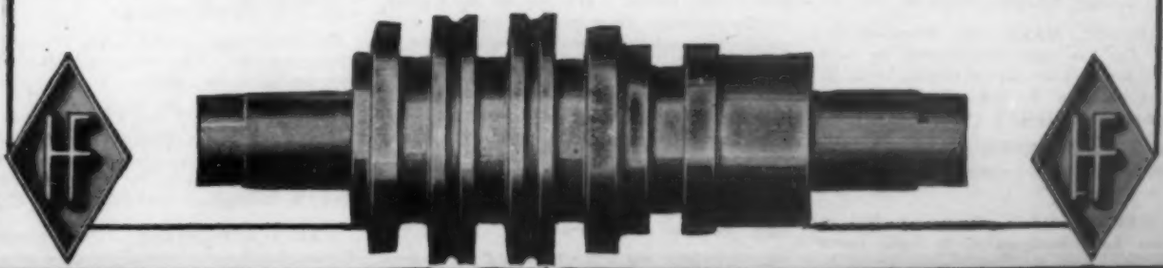


wise is of a single tool character, in which respect trade tone is like that of the first two months of this year. Milling machine manufacturers in this market are working on an average of about four days a week, which is somewhat in excess of the volume of output required by old orders and current business, but the feeling exists that a balance will be struck within a short time and hopes are expressed that within 30 days extension of production schedules will be required. The used tool market continues to be more active than that in new tools, and a good volume of sales of old equipment is reported.

Market Slowly Reviving

TORONTO, Ont., March 8.—While business is picking up slowly in the machinery and machine tool markets of Canada, buying is much behind that of normal times. Inquiries for various classes of equipment are coming out in larger numbers and many of these have resulted in sales. The present demand covers a wide range of territory. The majority of orders are for single tools, little or no big buying being done. Secondhand equipment is in good demand and dealers are finding many buyers who are more inclined at the present time to pick up a rebuilt tool than they were a year or six months ago. Small tools are making better headway, and although the bulk of the orders received by dealers call for small quantities there are some users who are stocking up. The Canadian National railways have specifications out for a number of small tools. Prices continue to hold and neither small tools nor machine tools have been reduced during the week.

Sales Few As Industry Slumps

CLEVELAND, March 8.—Demand for machine tools and equipment continues small. Sales during the week were of the same character as those for some time past, being confined to single machines, and although inquiries have shown a slight picking up, dealers and manufacturers do not look for a resumption of business on a large scale for some time. Industrial activity in general is at a minimum. A number of automobile manufacturing companies are working but three days a week, despite reports to the effect the automotive industry has shown a picking up lately. If such is the case, the recovery has been of such slight proportions as to have but little effect on the machinery and tool market in general.

During the past week a dealer sold a punch press to the Mills Co., Cleveland, and this represented his total business of the week. This dealer reports that in January his sales totaled 22 machines. In February sales fell off to eight. Other dealers' sales reports average up to this dealer's.

Probably the largest inquiry current here is that of the Batavia Car Co., Batavia, N. Y., which has asked for quotations on lathes, milling machines, portable drills and miscellaneous tool room equipment. Another inquiry has been received from the Bevington Metal Stamping Co., Cleveland, while inquiries are current in the district from the Halladie Co., Spokane, Wash., for a universal grinder and a universal miller, and the McDonald Machinery Co., St. Louis, asked for three shapers and two milling machines.

Prices continue the dominating topic between buyers and sellers of tools. As has been the rule for some time, the price trend is toward a lower level, although manufacturers in general claim they are still maintaining their old quotations. Despite this dealer's report prices are soft, concessions being granted whenever an actual sale will result from so doing. This amounts to a slight or a greater concession as the case necessitates to satisfy the buyer. During the past few days the Cincinnati Milling Machine Co., Cincinnati, announced a reduction of from 10 to 15 per cent, while Brown & Sharpe, Providence, R. I., advised its dealers to quote its prices from 10 to 15 per cent lower.

Construction and Equipment

Concise and Timely Business Building Opportunities from the Field of Industry

Among New England Plants

BOSTON—Plans are being drawn by Monks & Johnson, this city, for a foundry building for the Builders Iron Foundry Co., Providence, R. I.

BOSTON—The George E. Warren Corp. has been incorporated to do mining and manufacturing with a capital stock of $600,000, by George B. Oswald, G. Walter Anderson and Ralph A. Stewart, Brookline, Mass.

CAMBRIDGE, MASS.—The Blanchard Instrument Co. has been incorporated to build machinery with $20,000 capital stockk, by L. E. Blanchard, William P. Shine and Lester C. Gustin, Arlington, Mass.

EAST BRIDGEWATER, MASS.—The Old Colony Foundry Co. plans a plant addition.

FITCHBURG, MASS.—Wachusett Motors, Inc., has been incorporated to build motor vehicles, etc., with $100,000 capital stock, by Fred S. Suthergreen, Frank H. Brown and Wilfred C. Dresser.

READVILLE, MASS.—The large storehouse of the B. F. Sturtevant Co. was damaged by fire recently to the extent of $50,000.

WORCESTER, MASS.—The Worcester Gear Works, Inc., whose factory was damaged by fire Jan. 19, has opened a new one in the Osgood Bradley building, which has been equipped with modern machinery to specialize in spiral gears.

CONCORD, N. H.—The Crawford Mfg. Co. has been incorporated to make electric motors with $115,000 capital, by L. E. Wooten, New York, John J. Crawford, Philip Gill, New York, and Clarence R. Blanchard.

PORTSMOUTH, N. H.—Work has been started on the 2-story, 30 x 53-foot welding shop for the navy yard.

PORTSMOUTH, N. H.—Bids have been closed for a 2-story, 50 x 125-foot factory addition for the Portsmouth Auto Body Co. All machinery has been purchased.

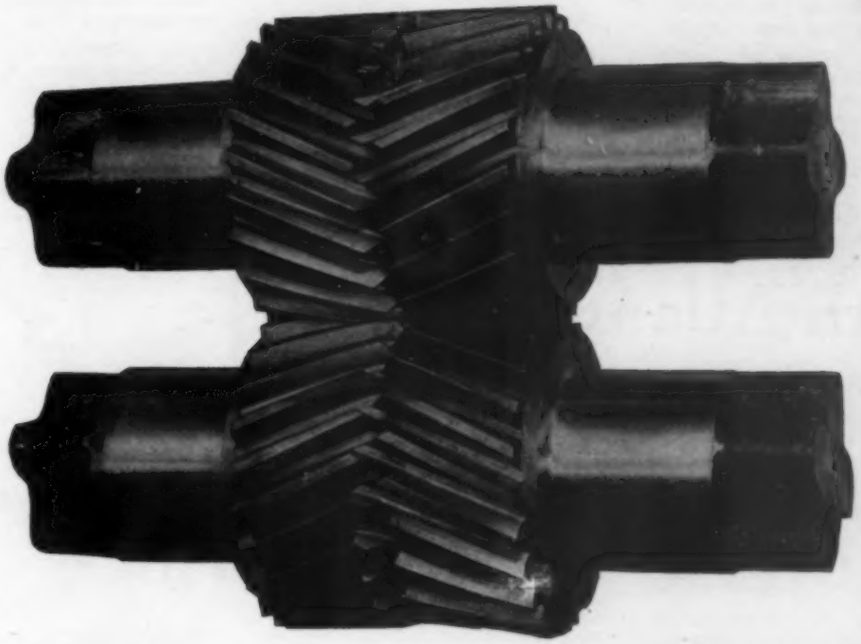
PROVIDENCE, R. I.—The United Electric Railways Co. is to modernize its Manchester street power station at a cost of $500,000.

BRIDGEPORT, CONN.—The General Sheet Metal Works will erect a corrugated iron, 1-story, 20 x 120-foot building.

BRIDGEPORT, CONN.—The Walker Silent Typewriter Co. has been incorporated for $500,000 by C. W. Walker, A. C. Walker and Leroy Hoover, all of Bridgeport.

HARTFORD, CONN.—The Gill Piston Ring Co. has been incorporated to make piston rings and build machinery with $3000 capital, by L. F. Robinson, F. W. Cole and F. E. Jones.

HARTFORD, CONN.—The Connecticut Blower Co. contemplates the erection of a brick



MILL PINIONS

Open Hearth Steel Castings

Gears for All Types of Rolling Mill Service

We own and operate one of the largest steel foundries in the West, making castings from 1 to 100,000 pounds.

THE FALK COMPANY

MILWAUKEE, WIS.

AGENTS: Pittsburgh—W. O. Beyer, 1007 Park Bldg. New York—M. P. Fillingham, 50 Church St. Wilkes-Barre—Vulcan Iron Works. Denver—Denver Engineering Works, San Francisco—F. W. Grimwood, Rialto Bldg. Montreal, Que., Can.—Engineering Equipment Co., 263 St. James St.

mill construction, 1-story, 50 x 200-foot factory to cost $40,000.

NEW BRITAIN, CONN.—The Corbin Screw Corp. has let the contract for a 1-story, 18 x 95-foot building.

NEW HAVEN, CONN.—The Shimmie Auto Co., Inc., has been incorporated to build a mechanical device with $15,000 capital, by E. D. Gartland, M. B. Wetmore and J. N. Rice.

NEW HAVEN, CONN.—The Drake Mfg. Co. has been incorporated for $30,500 to manufacture radiators, by B. E. Hoffman and others of New Haven.

NEW HAVEN, CONN.—Allen & Co., Inc., has been organized with a capital of $35,000 to manufacture hardware. Ralph Allen, 49 Oak avenue, Shelton, Conn., is one of the directors.

WATERBURY, CONN.—The Scovill Mfg. Co. will erect a 1-story, 155 x 160-foot addition to a brass mill to cost $100,000.

North Atlantic States

BINGHAMTON, N. Y.—The United Auto Gear & Parts Co. has been incorporated with $20,000 capital stock, by S. Bloom, H. and J. Levene.

BINGHAMTON, N. Y.—The Barton-Smith Mfg. Co., inventions and machinery, has been incorporated with $50,000 capital stock, by E. W. and C. E. Barton, and E. A. Smith.

BROOKLYN, N. Y.—The Novocal Chemical Co. plans alterations to its plant building at a cost of $15,000.

BROOKLYN, N. Y.—The Keystone Foundry Co. has been incorporated with $25,000 capital stock, by E. Sustick, D. and N. Rodner, 187 Graham avenue.

BROOKLYN, N. Y.—The Utility Steel Co. has been incorporated with $20,000 capital stock, by J. Roden, L. Rattejen, and E. Trabold, 95 Liberty street.

BROOKLYN, N. Y.—The Special Hardware Corp. has been incorporated with $12,000 active capital stock, by A. L. Rose, J. Gunn and C. Chaumont, 562 West 149th street.

BUFFALO—The DeLoe Shackleless Spring Corp. has been incorporated with $50,000 capital stock, by E. G. DeLoe, M. C. Spratt and H. J. Kelly.

ELMIRA HEIGHTS, N. Y.—The Eclipse Textile Devices has been incorporated with $25,000 capital stock, by A. D. Falck, E. J. Dunn and L. S. Whittier, to manufacture textile machinery, etc.

LONG BEACH, N. Y.—The Long Beach Power Co. plans a 1-story power plant at a cost of $125,000.

NEW YORK—The Dual Ignition & Mfg. Co. has been incorporated with $30,000 capital stock, by C. H. Hammond, S. C. and B. S. Henney, Sea Cliff, N. Y.

NEW YORK—The Coleman Railway Supply Co. has been incorporated with $50,000 capital stock, by S. Galligan, R. Eble and W. Coleman, 30 Church street.

NEW YORK—The Monsoon Cooling System, Inc., 70 West Forty-fifth street, plans a 2-story factory building, containing more than 500 square feet of floor space.

NEW YORK—The Peerless Automotive Equipment Co. has been incorporated with $50,000 capital stock, by L. Schiavone, S. A. Burgio and J. F. O'Neil, 662 Park place.

NEW YORK—The Mayonnaise Machine Corp. has been incorporated with $50,000 capital stock, by J. S. Jacobs, H. Lubetkin and E. M. Mueller, 253 Broadway.

NEW YORK—The Park Plumbing & Tinsmith Specialty Co. has been incorporated with $5000 capital stock, by S. Rosenbloom, H. Wolkomir and H. Fine, 1613 Park avenue.

NEW YORK—The Holbrook Co., West End avenue, has awarded a contract for a new plant building, 100 x 260 feet, to be devoted to the manufacture of automobile bodies.

NEW YORK—The Rees & Stindt Machine Works, Inc., has been incorporated with $30,000 capital stock, by J. E. Wick, G. Hazen and W. S. Irwin, 9 West Fourteenth street, to manufacture machinery and tools.

NIAGARA FALLS, N. Y.—The Niagara Patent Toy Co. has been incorporated with $30,000 capital stock, by J. A. Stone, R. S. Gabbey and A. R. Howe.

PERTH AMBOY, N. J.—The Burnrite Coal Briquette Co. is having plans drawn for plant buildings.

ROCHESTER, N. Y.—The Simplex Train Control Co. has been incorporated with $1,000,000 capital stock, by A. J. Ruttiven, H. E. Lasher and B. Johnston.

ROCHESTER, N. Y.—The Waubon Garage & Mfg. Co. has been incorporated with $50,000 capital stock, by J. J. Frawley, H. C. and E. H. Hien, to manufacture automobile parts, etc.

SCHENECTADY, N. Y.—The Metal Parts & Tool Co. has been organized by H. L. Kay, and S. R. Van Patten, to manufacture metal specialties, etc.

SYRACUSE, N. Y.—The Bliss Steel Products Corp. has been incorporated with $120,000 capital stock, by J. G. Smith, G. C. and R. H. Bliss.

ULSTER COUNTY, N. Y.—The Central Catskill Light & Power Co. has been incorporated with $50,000 capital stock, by J. J. and D. Sameth, and J. Hollander, 601 West 184th tareet, New York.

CHAMBERSBURG, PA.—The W. D. Byron Co. plans a boiler house addition.

COLLEGE HILL, PA.—The Traver Engineering Co., Inc., has been incorporated with $50,000 capital stock, by G. W. Sweeney and others, to manufacture mechanical specialties.

HAZELTON, PA.—The Tunnessen Mfg. Co., manufacturer of metal lamps, etc., plans a 1-story plant addition, 48 x 172 feet, to cost about $50,000.

PHILADELPHIA—The plant of the Atlantic Refining Co. recently was damaged by fire.

PITTSBURGH—The Pittsburgh Gas Appliance Mfg. Co. is being organized by R. Showalter, T. S. Leese and F. B. Wickersham, 1415 Park building, to manufacture gas appliances, etc.

UNIONTOWN, PA.—Part of the plant of the Dudley Electric & Machine Co. recently was damaged by fire.

ALDENE, N. J.—The Bruger Foundry Co., Inc., Grant street, has been incorporated with $100,000 capital stock.

CAMDEN, N. J.—The Kieckhefer Container Co. is erecting a factory building, 65 x 168 feet.

CAMDEN, N. J.—The Cutler Auto Radiator Co. has been incorporated with $100,000 capital stock, by Herman Z. Cutler, Henry Cooperson and Lawrence M. Verga.

JERSEY CITY, N. J.—The Aims Mfg. Co., 576 Newark avenue, has been incorporated with $100,000 capital stock, to manufacture chemicals, etc.

NEWARK, N. J.—Bender & Son plan a 1-story machine shop, 50 x 100 feet.

NEWARK, N. J.—Keiner & Co., chemicals, has been incorporated with $125,000 capital stock, by E. G. Keiner, Irving Willner and Jacob Lubetkin.

NEWARK, N. J.—The Globe Electrical Fixture Mfg. Co., 613 Springfield avenue, has been incorporated with $10,000 capital stock, by Fred Wilson, William H. Freeman, and others.

NEWARK, N. J.—The Replacement Auto Parts Co. has been incorporated with $100,000 capital stock, by Peter Peiffer, Clarence Ball, 19 Elm street, and others.

NEWARK, N. J.—The White Mfg. Co., auto accessories, has been incorporated with $50,000 capital stock, by B. F. White, Michael Greenbaum and William L. Greenbaum.

NEWARK, N. J.—The Kemiko Co., 30 Liberty street, has been incorporated with $50,000 capital stock, by A. L. Vandenberg, 316 Belleville avenue, Harold W. Yapp, Irvington, N. J., and others, to manufacture chemicals.

NEWARK, N. J.—The Newark Stream Line Body Co., 221 Morris avenue, has been organized to manufacture automobile bodies, etc., by Peter Solek, 62 Jones street, and others.

NEWARK, N. J.—The New Process Metals Corp., Division place, has been incorporated with $250,000 capital stock, by Walter F. Young, Newark, S. T. Edge, West Paterson, N. J., and Frank J. Morris, West Orange, N. J.

PITTSTOWN, N. J.—The machine shop and other buildings at the plant of Snyder Bros. recently were damaged by fire.

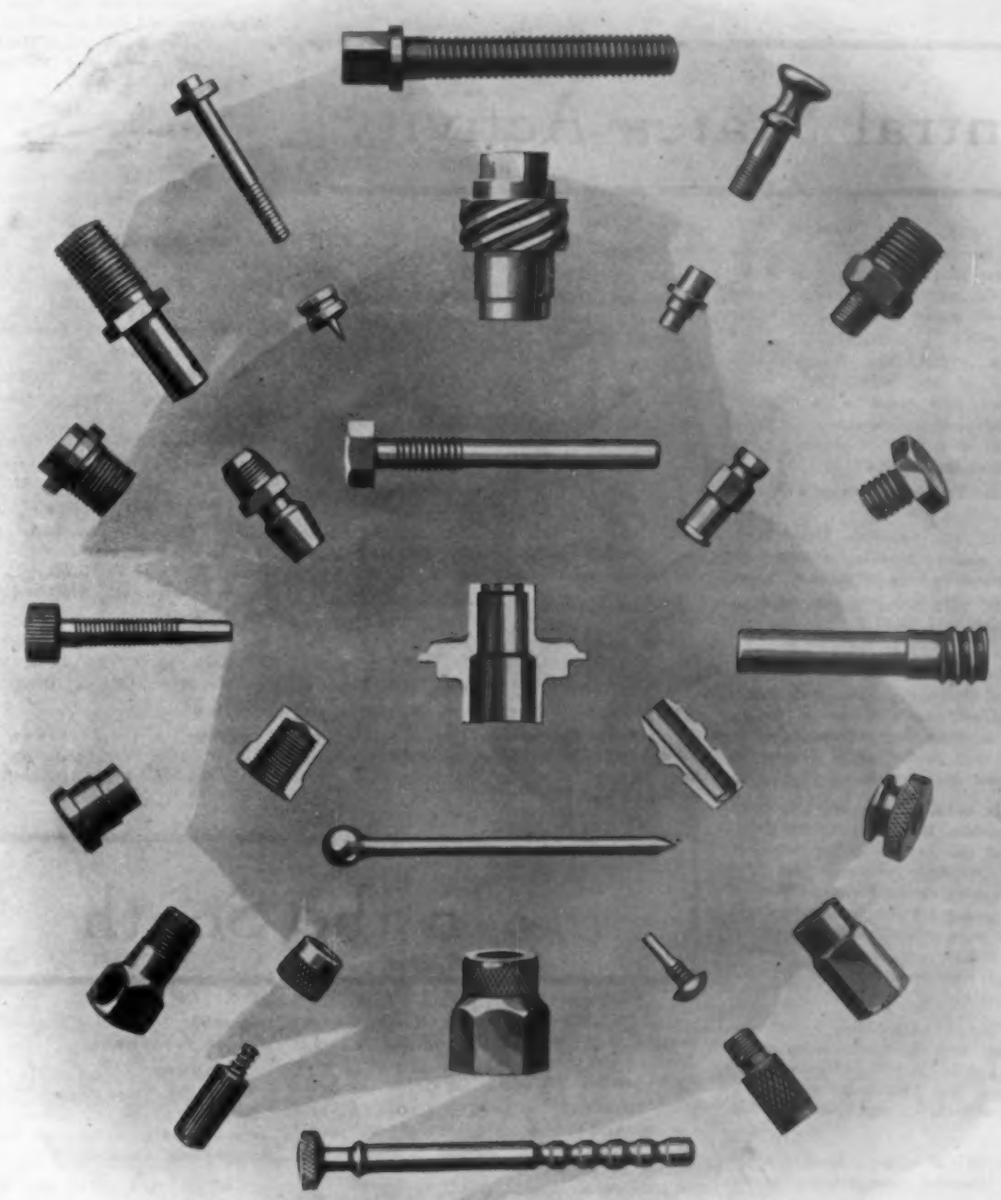
TRENTON, N. J.—The Trenton Zinc & Chemical Co. is having plans drawn for several units to be added to its plant.

UNION HILL, N. J.—The Public Safety Signal Corp. has been incorporated with $100,000 capital stock, by Harry A. Kleine, L. and Hugo Faller, 487 Palisade avenue, to manufacturer signal devices, etc.

WILMINGTON, DEL.—The United States Sheet Metal Works, Inc. has been incorporated with $50,000 capital stock, by George L. Townsend, 500 Ford building, E. P. Moody and D. L. Broughton, to manufacture metal goods.

BALTIMORE—The Greenmount Iron & Mfg. Co. plans a foundry addition.

BALTIMORE—The Zirconium Co. of America, organized by George F. Dixon, P. C. Spencer and others, 1622 Smallwood street, is reported planning to establish a plant for the manufacture of ferrozirconium, etc. It has.



HERE

are shown a few examples of many thousands of SPECIAL Screw Machine Products manufactured in our plant. We are SPECIALISTS in this line. The range of our capacity is the widest possible with modern Automatic equipment.

STANDARD SCREW PRODUCTS COMPANY

2471-2587 Bellevue Avenue Detroit, Mich.

purchased property consisting of six brick buildings, etc.

REMINGTON, VA.—The Electric Light & Power Co. has been organized with $25,000 capital stock, by A. L. Hord, C. W. Hoffman and others.

Central States Activity

LACROSSE, WIS.—L. J. Stellpflug and F. W. Humrich, formerly an automotive engineer of Cleveland, have formed the LaCrosse Automotive Service Co. and are opening a general machine and repair works specializing in motor and electrical practice.

MANITOWOC, WIS.—The former steam generating plant of the Manitowoc Electric Light Co., which is now owned by the city, will be rebuilt and equipped as a municipal garbage incinerating plant at a cost of about $30,000. Bids will be opened March 19.

MILWAUKEE—The Nash Motors Co. plans a plant building, 200 x 400 feet.

MILWAUKEE—The American Metal Products Co. plans a machine shop and foundry, the former, 75 x 150 feet, and the latter, 50 x 75 feet.

SHEBOYGAN, WIS.—The Jenkins Machine Co. plans a machine shop addition, 2-stories, 150 x 200 feet.

WAUPUN, WIS.—A. H. Luebke, C. Lemmenes and Gerrett Hull have organized the Safety Fender Co., and will open a factory in the old Breyer-Whiting machine shop building to manufacture bumpers and similar safety devices for passenger cars and motor trucks.

WEST BEND, WIS.—To finance a quantity output of its product, the Miller Spouting Co., organized several months ago, is increasing its capitalization to $100,000 preferred and 2000 shares of nopar value common stock. Most of the machinery needed for the present has been purchased. The company will make a patented spouting with flexible couplings, for handling grain and similar commodities in mills, warehouses, elevators, etc.

DETROIT—The Leitch-Nelson Co. has been incorporated with $100,000 capital stock, by John H. Leitch, A. H. Hagstrom and Anthony Nelson, 665 Hancock avenue, to manufacture automobile mechanical equipment, etc.

LANSING, MICH.—The Ideal Power Mower Co. is reported contemplating enlarging its facilities.

MARYSVILLE, MICH.—The Tool Salvage Co. is having plans drawn for a manufacturing building, to cost about $25,000.

CHICAGO—The D. O. James Mfg. Co., 1120 West Monroe street, manufacturer of gears, plans a plant addition.

CHICAGO—William W. Nugent & Co., 146 West Superior street, manufacturer of oiling devices, plans a 1-story plant building, 50 x 125 feet, to cost about $20,000.

CHICAGO—The Floyd Mfg. Co., 522 South Clinton street, manufacturer of tools, has let contracts for a 2-story plant, 122 x 240 feet and a 1-story power house, 35 x 60 feet.

CHICAGO—The Duplex Boiler Co., 30 North La Salle street, has been incorporated with $25,000 capital stock, by G. H. Powell, R. L. Baker, T. H. Barton, and others, to manufacture and deal in boilers, parts, etc.

CHICAGO—The Enterprise Railway Equipment Co., 209 South La Salle street, has been incorporated with $500,000 capital stock, by W. H. Miner, George I. Haight and A. Campbell, to manufacture cars, etc.

CHICAGO—The Loveridge Air-Electric Car Control Co., 1165 McCormick building, has been incorporated with 300 shares of no par value stock, by R. H. Hendershot, F. F. Page, C. B. O'Neil, and others.

CHICAGO—The West Leather Belting Co., 1021-39 South La Salle street, has been incorporated with $35,000 capital stock, to manufacture and deal in leather belting, etc., by F. O. Mason, K. M. West and Edward P. Adams.

CHICAGO—The Industrial Electrical Co., 432 North State street, has been incorporated with $7000 capital stock, by Martin W. Swanson, Sidney A. March, Neil M. Thompson Jr., and others.

CHICAGO—The Dahl Auto Coaster Corp., 57 North Van Buren street, has been incorporated to manufacture and deal in vehicles, etc., with $100,000 capital stock, by Walter Thomas, Wayne Wadhams, Conrad Dahl, and others.

CHICAGO—The Markin Auto Body Corp., 2845 South State street, has been incorporated with $150,000 capital stock, to manufacture and deal in auto bodies, parts, etc., by Max Luster, Abe Lomberg and Morris Markin.

CHICAGO—The Muehlhausen Spring Co., 5841 Loomis avenue, has been incorporated to manufacture and deal in springs, etc., with $25,000 capital stock, by Adam Muehlhausen, Henry F. George, Arthur and F. Muehlhausen, and others.

GALESBURG, ILL.—The Galesburg Malleable Castings Co. has let a contract for a plant building, 80 x 500 feet.

PEORIA, ILL.—The plant of the Peoria Machinery & Tool Co. recently was damaged by fire.

INDIANAPOLIS—E. J. Schneider, 1049 Blaine avenue, plans a 1-story machine shop at a cost of $12,000.

CINCINNATI—The M. A. Hunt Co., bed spring maker, plans extensions and alterations to its plant.

CLEVELAND—The National Acme Co., East 131 street, plans a 3-story plant building.

CLEVELAND—The Fisher Vulcanizing Equipment Co. has been incorporated with $35,000 capital stock, by A. H. Fisher, W. T. Lechlider, and others.

DAYTON, O.—The Budai Oil Burner Co. has been incorporated with $20,000 capital stock, by G. Burkhardt, H. G. Schneider, P. P. Budai, G. Millinkovitz and others.

DAYTON, O.—The Lignite Pressed Coal Co. has been incorporated with $60,000 capital stock, by C. W. Lenz, W. D. Anspach, W. F. Hyers, E. G. Denlinger and P. N. Sigler.

LIMA, O.—The Lima Sheet Metal Products Co. will start work soon on the construction of the first unit of its proposed plant.

In the South

HAPPY, KY.—The Happy Coal Co., 1304 Fayette Bank building, Lexington, Ky., will develop 500 acres and will install mining equipment and machinery.

LOUISVILLE, KY.—The Caloric Furnace Co. has been incorporated with $15,000 capital stock, by G. S. and Arthur L. Woods and William C. Emrick.

MIDDLESBORO, KY.—J. R. Hoe & Son plans an addition to its foundry.

JOHNSON CITY, TENN.—The Johnson City Boiler & Tank Co. has been incorporated with $20,000 capital stock, by J. W. Williams, B. A. Coleman, and others.

MEMPHIS, TENN.—The Ideal Tractor-Cultivator Co. plans to install equipment in its plant.

NASHVILLE, TENN.—The Quicksafe Mfg. Co. has been incorporated with $100,000 capital stock, by A. L. Lawson, N. M. Tucker and I. A. O'Kain.

ANDERSON, S. C.—The Centerville Electric Co. has been organized with $7000 capital stock, by W. C. Gilmer, T. S. Allen and others. The company will construct a 6-mile transmission line, etc.

GREER, S. C.—The Blue Ridge Power Co. will build a power line to be owned by the city.

CHARLOTTE, N. C.—J. A. Arthurs will establish a foundry and machine shop here.

COLUMBUS, N. C.—This city is reported planning to install an electric lighting system.

CONNELLY SPRINGS, N. C.—The Connelly Springs Light & Power Co. has been incorporated with $25,000 capital stock, by R. R. Ennies, W. J. Davis and A. C. Page.

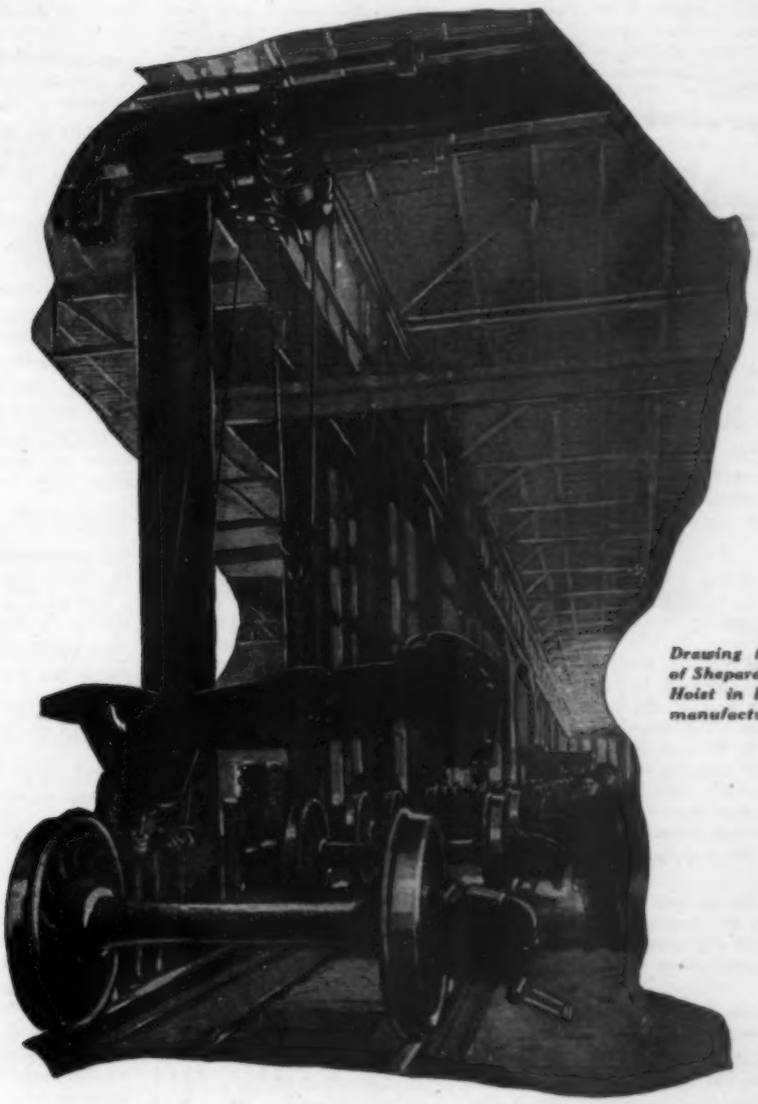
Throughout the West

ST. PAUL—The Hannepin Atomized Fuel Co. plans a fuel crushing plant at a cost of $150,000.

SPENCER, IOWA.—C. A. Trauger's machine shop recently was damaged by fire.

FULTON, MO.—This city plans to improve its electric light and water plants.

KIRKSVILLE, MO.—The Automatic Self-



Drawing from photograph of Shepard Floor-controlled Hoist in large railroad car manufacturing company.

Keeps output up and upkeep down

A Shepard Electric Hoist is a big aid in maintaining production schedules. It is the "mighty arm," reaching from above that is always ready, ever-dependable whether called upon to lift or lower a fragile load or "tonnage" piece.

A SHEPARD is easily and economically maintained. Dirt, dust, dampness, and fumes are excluded from operative parts by tight metal housings. Gears turning in baths of oil, insure thorough lubrication.

Let Shepard Engineers help you—their services are extended without obligation on your part.

Electric Traveling Cranes 1 to 50 tons; Electric Hoists ½ to 30 tons; Electric Winches and Cargo Handling Equipment for Docks and Ships.

Shepard Electric Crane & Hoist Co.
358 Schuyler Ave. Montour Falls, N. Y.

New York, Boston, Detroit, Philadelphia, Baltimore, Melbourne, Chicago, Cleveland, Cincinnati, Montreal, Pittsburgh, San Francisco, London

Member Electric Hoist Manufacturers' Assn.

SHEPARD
ELECTRIC CRANES & HOISTS

2157-8

Leveling Clock Co., recently organized by J. A. Pixter, J. T. Dodson, J. D. McCory and others, will install machinery and equipment for the manufacture of clock mechanisms, etc. The company is capitalized at $350,000.

ST. LOUIS—The Missouri Car Co., 410 Fullerton building, plans a new plant.

ST. LOUIS—Fire damaged the Missouri Pacific machine shops. The loss is said to be over $100,000.

COTTER, ARK.—The Dixie Power Co. plans a power plant on the White river.

ROGERS, ARK.—The Rogers Power Co. has been incorporated with $50,000 capital stock, by Morgan McMichael, E. G. Sharp and R. D. Alexander.

DUNCAN, OKLA.—The Temple Machine & Foundry Co., Temple, Okla., is reported planning to establish a plant here.

MARIETTA, OKLA.—F. A. Price and Joseph Curtis, both of Gainesville, Fla., have purchased the Marietta light and water plant and will expend $20,000 in improvements.

MOUNTAIN VIEW, OKLA.—This city plans a power plant, 30 x 40 feet, at a cost of $30,000. V. V. Long & Co., 1300 Concord building, Oklahoma City, are engineers.

OKMULGEE, OKLA.—The B. & A. Mining Co. will install electrically operated coal mining machinery, hoist engines, etc.

SAPULPA, OKLA.—This city contemplates installing a lighting system.

YALE, OKLAHOMA—The Buffalo Refining Co. plans a refinery with a capacity of about 1000 barrels a day.

MULBERRY, KANS.—The Mulberry Foundry & Machine Co. plans a foundry and machine shop, 75 x 100 feet, at a cost of $75,000.

TOPEKA, KANS.—This city plans an addition to its power plant, 1-story, 34 x 57 feet.

BURKBURNETT, TEX.—The C. F. Noble Oil & Gas Co. is reported planning to rebuild its gasoline plant recently damaged by fire.

DALLAS, TEX.—The Dallas Power & Light Co. plans improvements to its plant.

DALLAS, TEX.—The Blanchard Saw & Machine Co. has been incorporated with $10,000 capital stock, by J. H. Blanchard, J. W. Simmons and J. C. Weaver.

ENNIS, TEX.—The Gaida Tractor & Implement Co. has been incorporated with $5000 capital stock, by W. and John Gaida and Frank Kallus.

MERCEDES, TEX.—The Mercedes Water, Light & Power Co. has been incorporated with $100,000 capital stock, by C. B. and E. B. Witmer and A. J. Summers.

SWEETWATER, TEX.—The Sweetwater Oil Refining Co. is reported planning a refinery.

PORTLAND, OREG.—The boiler plant at the Willamette Iron & Steel Co. recently was damaged by fire.

PORTLAND, OREG.—The Willamette Iron & Steel Co. recently purchased 10 acres in North Portland, part of the site of the Foundation Co.'s shipyard, and will start soon on the construction of a plant to cost about $500,000.

EMERYVILLE, CAL.—The Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. is reported planning a plant here.

FRESNO, CAL.—The foundry at the plant of the Lisenby Mfg. Co. recently was damaged by fire.

GLENDALE, CAL.—The Glendale Fire Extinguisher Co., 103 North Grand boulevard, has been organized by R. T. Sodestrom, 307 Hawthorne street, and James F. McBryde, East California street.

LONG BEACH, CAL.—The Pneumatic Equipment Co. has been incorporated with $1,000,000 capital stock, by George Boedecker, H. R. Cory and L. E. Martin to manufacture mechanical products.

OAKLAND, CAL.—The W. H. McKenzie Valve & Fitting Pipe Testing Machine Corp. has been incorporated to manufacture valve and fitting pipe testing machines, by W. H.

(Concluded on page 732)

Water Power Projects Are Approved

THE Federal Power commission, Washington, at its meeting Feb. 28, approved a modification of regulations, 1 to 10, which had been issued on Sept. 3, 1920. It also approved additional regulations, 11 to 20 inclusive, covering the following subjects: General considerations affecting approval, project work, lands reserved or classified as power sites, annual charges, benefits from headwater improvement, depreciation reserves, amortization reserves, expropriation of excessive profits, allocations of earnings, accounts and reports. The commission also approved the following applications and authorized the issuance of permits or licenses.

The Niagara Falls Power Co. project No. 16, for a diversion of 19,500 c.f.s. of water from the Niagara river, such water to be taken from above the falls and returned to the Maid of the Mist Pool in accordance with plans approved by the war department at the time of the consolidation of the company. The license will be issued for a period of 50 years in consideration of which the company will be required, during the period of the license, to amortize completely the investment in the old plants of the former Niagara Falls Power Co. and station No. 2 of the former Hydraulic Power Co.

Henry Ford & Son, Inc., project No. 13, for a power plant on the Hudson river near Troy, N. Y., for the utilization of the surplus power at the government dam at that place.

The Southern California Edison Co. for extensions of its existing system on the headwaters of the San Joaquin river.

Luther Hill, of Inyo, Cal., project No. 58, for a project of less than 100-horsepower.

The commission also authorized the issuance of preliminary permits in the following cases:

Washington Irrigation & Development Co. for investigation of a project on the Columbia river at Priest Rapids in the state of Washington.

The Dixie Power Co. for a project on the White river in Arkansas.

The Pitt River Power Co. of California for a project on the Pitt river.

The United Mills Co. of North Carolina, for a project in Caldwell county.

The Lower Niagara River Power & Water Supply Co. for a project in the Gorge of the Niagara river.

The Hydraulic Race Co. of Lockport, N. Y., for a diversion of waters of the Niagara river through the barge canal.

Authorizations were also given for the issuance of permits for transmission lines in the following cases:

The Southern California Edison Co., California. Coast Valleys Gas & Electric Co., California. Amazon Dixie Mining Co., Montana. Paving Granite Quarry Co., South Dakota. Spanish Belt Silver Mining Co., Nevada. Butte-Jardine Metals Mines Co., Montana.

During the week ended Feb. 19, two applications for permits or licenses under the water power act were filed with the commission, while in the week ended Feb. 26, two more were filed. This now brings the total applications to date to 178.

Comprehensive scheme of development on the west and north forks of Kings river, in Fresno county, Cal. The project includes three storage dams varying in height from 190 to 315 feet, storing about 250,000 acre feet and covering 2000 acres; eight diversion dams 15 to 80 feet high, nine conduits and six power houses with a head varying from 235 to 2510 feet, and generating a total of approximately 200,000 horsepower. Proposed by the San Joaquin Light & Power Corp., Fresno, Cal. Project No. 175.

Conduit 14½ miles long diverting water from the San Luis Rey river into the head of Bear valley, Cal. A rock fill, storage dam 120 feet high in Bear valley, creating a reservoir covering 275 acres. Just below this dam is a small diversion dam, pen stock, and power house generating 130 horsepower eight months in the year. A branch from the main conduit diverts 6 cubic feet to the Rincon Indian reservation, on which is built a power house generating 170 horsepower. Project already constructed by the Escondido Mutual Water Co., care H. Hawgood, Hellman building, Los Angeles.

Construction of power plant at the proposed government lock and dam in Tallahassee Meridian, Fla., with an available head of 10½ feet, to develop 500 horsepower. Proposed by the Ocklawaha Reclamation Farms, Ocala, Fla. Project No. 177.

License for a onstructed dam, reservoir, conduit, power house and transmission line in the Kern river, 12 miles northeast of Bakersfield, Cal., and the construction of a new dam 132 feet high, enlarge the existing tunnel and build a new power house to develop 12,000 horsepower. Proposed by the San Joaquin Light & Power Corp., Fresno, Cal. Project No. 178.

The Manchester Guardian
Commercial
A Weekly World-Review of Industry, Trade and Finance.
Vol. II.—No. 7.
THREEPENCE.

AMERICAN IRON TRADE.

IDLE PLANTS AND FALLING PRICES.

A cablegram received from the "Iron Trade Review," Cleveland, Ohio, America, states:—New business sluggish. Many plants shut down for holidays are still idle. Independents at lowest point, stoppages reaching 20 to 50 per cent. Corporation continuing much higher proportion. Prices soft, but steel largely unrested. Furnace figure cut at least a dollar Ore iron prices still fall. Outlook uncertain Some sheet mills operating 35 per cent capacity. No new business in plates. Extensiv stoppage of furnaces using up stocks of pig-iron. Many foundries closed.

The Manchester Guardian Commercial, Manchester, Eng., is a business man's weekly newspaper, published by the Manchester Guardian. Outside of London, the Guardian is one of the most widely circulated and most powerful newspapers in Great Britain.

400 Newspapers Regularly Quote

THE IRON TRADE REVIEW

CLEVELAND

The international reputation and the World-wide circulation of THE IRON TRADE REVIEW is the result of year after year of unfailing Editorial accuracy and reliability.

PROOF—

THE IRON TRADE REVIEW

"The Most Widely Quoted Trade Paper In The World"

Iron and Steel Scrap Prices

CORRECTED TO TUESDAY NOON GROSS TONS DELIVERED TO CONSUMER

Steel Works Scrap

HEAVY MELTING STEEL

Pittsburgh	$15.00 to 16.00
Chicago	13.00 to 13.50
Eastern Pennsylvania	13.00 to 14.00
Cleveland	14.00 to 14.50
St. Louis	13.50 to 14.00
Buffalo	15.00 to 15.50
New York (dealers)	9.50 to 10.00
Birmingham	14.00 to 15.00
Cincinnati	15.00 to 16.00
Valleys	15.00 to 15.50
Boston (dealers)	8.00 to 9.00
Detroit	10.50

BUNDLED SHEETS

Pittsburgh	$11.00 to 12.00
Eastern Pennsylvania	12.50 to 13.00
Cleveland	7.00 to 8.00
Buffalo	10.00 to 11.00
Cincinnati	7.50 to 8.50
St. Louis	6.00 to 6.50

STEEL RAILS, SHORT

Chicago	$15.00 to 15.50
Boston (dealers)	12.00 to 13.00
Cleveland	11.00 to 12.00
St. Louis	14.00 to 14.50
Birmingham	15.00 to 16.00
Cincinnati	15.50 to 16.00

STOVE PLATE

Pittsburgh	$15.00 to 16.00
Chicago	18.50 to 19.00
Eastern Pennsylvania	15.50 to 16.00
Cleveland	15.00 to 16.00
Detroit	19.00 to 20.00
Birmingham	17.00 to 18.00
Buffalo	17.00 to 18.00
New York	15.00 to 15.50
St. Louis	16.00 to 16.50
Cincinnati	19.00 to 21.00
Boston (consumers)	14.00 to 14.50

LOW PHOSPHORUS

Pitts., billet and bloom crops	$22.00 to 23.00
Cincinnati	23.00 to 24.00
Buffalo	21.00 to 22.00
Eastern Pennsylvania	21.00 to 22.00

SHOVELING STEEL

Chicago	$13.00 to 13.50
St. Louis	12.50 to 13.00
Pittsburgh	11.00 to 12.00

KNUCKLES, COUPLERS & SPRINGS

Pittsburgh	$16.00 to 17.00
Chicago	14.50 to 15.00
St. Louis	14.00 to 14.50
Eastern Pennsylvania	18.00 to 20.00

COMPRESSED SHEETS

Pittsburgh	$12.00 to 13.00
Chicago	10.50 to 11.00
Buffalo	12.00 to 13.00

FROGS, SWITCHES, GUARDS

Chicago	$13.00 to 13.50
St. Louis	13.50 to 14.00
Eastern Pennsylvania	13.00 to 14.00

BOILER PLATE, CUT

Detroit	$9.50 to 10.50
St. Louis	9.00 to 9.50

ANGLE BARS—STEEL

Chicago	$14.50 to 15.00
St. Louis	13.50 to 14.00

Iron Mill Scrap

RAILROAD WROUGHT

Pittsburgh, No. 1	$16.00 to 17.00
Pittsburgh, No. 2	15.00 to 16.00
Chicago, No. 1	14.00 to 14.50
Chicago, No. 2	13.50 to 14.00
Eastern Pennsylvania, No. 1	19.00 to 20.00
Cleveland, No. 1	15.00 to 16.00
St. Louis No. 1	13.00 to 13.50
St. Louis No. 2	12.50 to 13.00
Buffalo	20.00 to 21.00
Cincinnati No. 1	15.00 to 16.00
Birmingham, No. 1	16.00 to 17.00
New York, No. 1 (dealers)	16.00 to 17.00
Boston (dealers)	13.00 to 13.50

WROUGHT PIPE

Eastern Pennsylvania	$14.50 to 15.50
Buffalo	13.00 to 14.00
New York (dealers)	10.50 to 11.00
Boston (dealers)	10.50 to 11.00

YARD WROUGHT

Boston	11.50 to 12.00
Eastern Pennsylvania, No. 1	16.00 to 17.00

CITY WROUGHT

New York, long	$13.00 to 14.00

BUSHELING

Chicago, No. 1	$13.50 to 14.00
Chicago, No. 2	10.50 to 11.00
Cleveland, No. 1	10.00 to 11.00
Cleveland, No. 2	7.00 to 8.00
St. Louis, No. 1	14.00 to 14.50
Buffalo, No. 1	13.00 to 14.00
Cincinnati No. 1	15.00 to 16.00
Eastern Pennsylvania, No. 1	14.50 to 15.00

MACHINE SHOP TURNINGS

Pittsburgh	$ 9.00 to 10.00
Chicago	7.00 to 7.50
Eastern Pennsylvania	11.50 to 12.00
Cleveland	9.00 to 9.25
Buffalo	11.00 to 12.00
New York (dealers)	8.50 to 9.00
St. Louis	5.50 to 6.00
Detroit	5.00
Cincinnati	6.50 to 7.50
Birmingham	8.00 to 9.00
Valleys	8.00 to 8.25
Boston (dealers)	6.00 to 6.50

CAST IRON BORINGS

Pittsburgh	$11.00 to 12.00
Chicago	8.75 to 9.25
Eastern Pennsylvania	12.00 to 13.00
Eastern Pennsylvania (chem.)	10.00 to 11.00
Cleveland	12.00 to 13.00
St. Louis	8.50 to 9.00
Detroit	7.50
Buffalo	11.00 to 12.00
New York (dealers' price)	10.00 to 11.00
Cincinnati	9.50 to 10.00
Birmingham	8.00 to 9.00
Valleys	12.00 to 12.50
Boston (dealers)	6.00 to 7.00
Boston (chemical)	8.00 to 9.00

MIXED BORINGS AND TURNINGS

(For blast furnace use)

Eastern Pennsylvania	$10.00 to 11.00
Boston (dealers)	4.50 to 5.00
Cleveland	10.00 to 12.00

IRON AXLES

Pittsburgh	$36.00 to 37.00
New York (dealers)	33.00 to 34.00
Chicago	37.00 to 37.50
Eastern Pennsylvania	30.00 to 31.00
Detroit	39.00
Cleveland	28.00 to 29.00
St. Louis	28.00 to 28.50
Buffalo	30.00
Cincinnati	35.00 to 36.00
Birmingham	30.00 to 32.00

IRON RAILS

Chicago	$19.50 to 20.00
Cleveland	17.00 to 18.00
St. Louis	16.00 to 16.50
Buffalo	21.00 to 22.00
Cincinnati	22.00 to 23.00

PIPES AND FLUES

Chicago	$10.75 to 11.25
Cleveland	9.00 to 10.00
Detroit	10.50 to 11.25
St. Louis	11.00 to 11.50
Cincinnati	11.50 to 12.50

GRATE BARS

Chicago	$13.50 to 14.00
Cleveland	19.00 to 20.00
Detroit	14.00 to 15.00
Buffalo	14.00 to 15.00
New York (dealers)	15.50 to 16.00
Eastern Pennsylvania	16.00 to 17.00

FORGE FLASHINGS

Cleveland, large	$9.00 to 10.00
Chicago, small	10.00 to 10.50
Cleveland, small	8.00 to 9.00
Boston (dealers)	7.00 to 7.50

FORGE SCRAP

Chicago	$13.00 to 13.50
Eastern Pennsylvania, No. 1	15.00 to 16.00
Boston	7.00 to 7.50

ARCH BARS AND TRANSOMS

Chicago	$21.50 to 22.00
St. Louis	18.00 to 18.50

ANGLE BARS—IRON

Chicago	$20.00 to 20.50
St. Louis	17.00 to 17.50

Iron and Steel Works Scrap

AXLE TURNINGS

Pittsburgh	$12.00 to 13.00
Eastern Pennsylvania	13.00 to 14.00
Boston (dealers)	7.00 to 7.50
St. Louis	8.00 to 8.50
Detroit	10.00 to 10.50
Cleveland	13.50 to 14.00
Buffalo	14.50 to 15.50
Chicago	10.50 to 11.00

STEEL CAR AXLES

Pittsburgh	$22.00 to 23.00
Eastern Pennsylvania	25.00 to 26.00
Cleveland	25.00 to 26.00
St. Louis	18.00 to 18.50
Buffalo	25.00 to 26.00
Chicago	17.50 to 18.00
New York (dealers)	19.00 to 20.00
Birmingham	19.00 to 20.00
Boston (dealers)	17.50 to 18.00
Detroit	20.00

SHAFTING

Eastern Pennsylvania	$25.00 to 26.00
St. Louis	18.00 to 18.50
New York (dealers)	19.00 to 20.00
Chicago	24.00 to 25.00
Boston (dealers)	17.00 to 18.00

Iron Foundry Scrap

CAR WHEELS

Pittsburgh, iron	$20.00 to 21.00
Pittsburgh, steel	16.00 to 17.00
Chicago, iron	18.00 to 18.50
Eastern Pennsylvania, iron	22.00 to 22.50
Cleveland, iron	35.00 to 36.50
St. Louis, iron	18.00 to 18.50
Buffalo, iron	24.00 to 25.00
Birmingham, iron	20.00 to 21.00
Birmingham, tram car	20.00 to 21.00
Boston (consumers)	23.00 to 24.00
Cincinnati	21.00 to 22.00
New York, iron	21.00 to 22.00
Detroit	25.75 to 26.75

NO. 1 CAST SCRAP

Pittsburgh, cupola	$21.00 to 22.00
Chicago, cupola	19.00 to 19.50
Eastern Pennsylvania, cupola	21.00 to 22.00
Cleveland, cupola	21.00 to 22.00
New York cupola (dealers)	19.00 to 20.00
Cincinnati, No. 1, machinery, cupola (net)	20.00 to 21.00
Detroit	18.00
Birmingham, cupola	19.00 to 20.00
St. Louis, railroad	18.00 to 18.50
St. Louis, agricultural	17.00 to 17.50
Buffalo	20.00 to 21.00
Boston (consumers)	22.50 to 23.50
Valleys	21.00 to 22.00

HEAVY CAST

New York (dealers)	$18.00 to 19.00
Buffalo	19.00 to 20.00
Pittsburgh	13.00 to 16.00
Cleveland	14.00 to 14.50
Boston (consumers)	18.00 to 19.00

MALLEABLE

Pittsburgh, railroad	$15.00 to 16.00
Pittsburgh, agricultural	13.00 to 14.00
Chicago, railroad	16.50 to 17.00
Chicago, agricultural	16.50 to 17.00
Eastern Pennsylvania, railroad	17.00 to 18.00
Cleveland, railroad	17.50 to 18.00
Cleveland, agricultural	14.00 to 15.00
St. Louis, railroad	13.00 to 13.50
St. Louis, agricultural	13.00 to 13.50
Cincinnati, railroad	15.00 to 16.50
Cincinnati, agricultural	16.00 to 17.00
Boston, railroad	15.00 to 16.00
Buffalo	15.00 to 16.00
Detroit	11.00 to 12.00

Miscellaneous Scrap

RE-ROLLING RAILS

5 feet and over

Pittsburgh district	$16.00 to 17.00
Chicago	13.50 to 14.00
Eastern Pennsylvania	18.00 to 20.00
Cleveland	17.00 to 18.00
St. Louis	14.00 to 14.50
Birmingham	16.00 to 17.00
Boston (dealers)	12.50 to 13.00
New York (dealers)	15.00 to 16.00

LOCOMOTIVE TIRES

Chicago	$13.75 to 14.25
St. Louis	10.50 to 11.00

LOW PHOSPHORUS PUNCHINGS

Chicago	$16.50 to 17.00
Eastern Pennsylvania	16.00 to 17.00
Pittsburgh	17.00 to 18.00

When the Scrap Market Is Dull

While seeking a more favorable market the best form in which to hold your sheet scrap, etc., and the form that always commands the best prices is the dense hydraulically compressed bundle.

Thus less storage space is required—under roof to prevent loss from corrosion; and because of greater car tonnage under minimum car rate, you add from 25% to 50% freight savings to your profits.

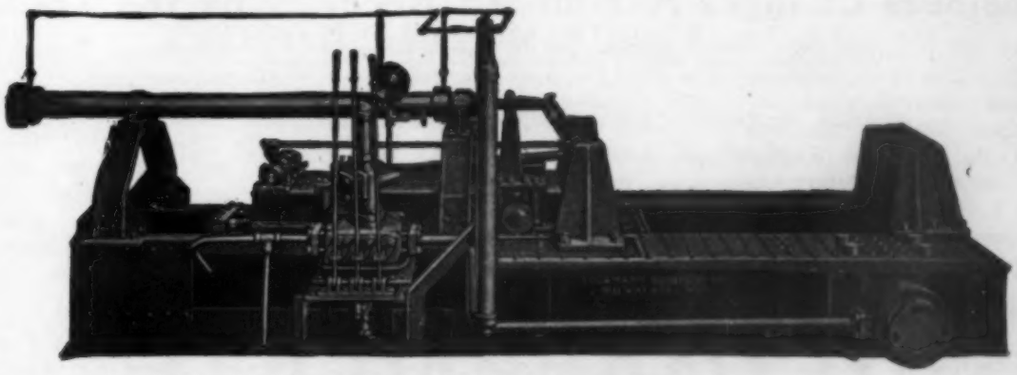
For greatest compression, largest daily output, at lowest operating cost, use

LOGEMANN Double Ram Hydraulic Scrap Metal PRESSES

You can enjoy the advantage of the accumulated experience from hundreds of Logemann scrap bundling presses now in use.

They embody a simplified mechanism that requires no special skill to operate rapidly. Press and pump are so designed that all the motive power applied is utilized, thus reducing power cost.

Powerfully built, all working parts constructed to resist the severest strains—selected material, first class workmanship—all minimize upkeep cost and insure lasting efficiency.



A medium sized press is shown; there are smaller and larger sizes in standard models.

Advise character and daily tonnage of your scrap and let us suggest press best suited to your requirements.

Logemann Brothers Co.

3126 Burleigh Street
Milwaukee, Wis.

Builders of Baling Presses and Hydraulic Machinery

New Trade Publications

PIPE—The Reading Iron Co., Reading, Pa., is circulating a 12-page bulletin in which structural differences in iron and steel are pointed out. This is a second bulletin on the subject of wrought iron pipe to be issued by the company.

GENERATING STATIONS—The General Electric Co., Schenectady, N. Y., is circulating an elaborate 24-page illustrated booklet in which automatic hydro-electric generating stations and their generating equipment, are described and illustrated.

THREAD MILLER—The Smalley General Co., Bay City, Mich., is circulating an 8-page illustrated folder in which a number of time studies of operations done by a thread miller are given. The studies are interesting and instructive.

ENGINE INDICATORS—The Bacharach Industrial Instrument Co., Pittsburgh, is circulating an 8-page illustrated booklet in which engine indicators, for the determining of power developed, etc., are described and illustrated. Full data are given.

GEAR HOBBERS—The Hercules Machine & Tool Co., Astoria, N. Y., has published a 12-page booklet in which gear hobbers are described and illustrated. Full data are given concerning the machines, including specifications, etc.

CUPOLAS—The Whiting Corp., Harvey, Ill., is circulating a 32-page booklet containing a list of users of cupolas which it manufactures. In addition a number of testimonial letters are given. The list of users includes those using the various types and sizes of cupolas which the company makes.

PORTABLE BUILDINGS—The Ohio Body & Blower Co., Cleveland, is circulating an illustrated folder in which portable steel buildings are described and illustrated. A list of uses to which these buildings are adopted include, garages, tool houses, grain storage, offices, signal stations, waiting rooms, explosive storage, etc. Specifications, etc., are given.

ROLLER BEARINGS—The American Roller Bearing Co., Pittsburgh, is circulating a 28-page illustrated booklet in which roller bearings are described and illustrated. The booklet is principally devoted to illustrating the various machinery and equipment which are equipped with these bearings. These bearings, according to the booklet, are the direct development of the cage type design. They are furnished in two types, standard and heavy duty, both types being of similar design.

STATIC CONDENSERS—A static type condenser is described and illustrated in a 20-page illustrated booklet recently published by the General Electric Co., Schenectady, N. Y. According to the booklet, this type of condenser may be installed in any out of the way space or in a substation receiving only monthly inspection, because it does not require an attendant for its operation. Condensers of this type have been standardized for installation on circuits ranging in frequency from 40 to 125 cycles, in voltage from 20 to 2300 volts and in capacities from 30 to 300 kilovolts ampere. The booklet points out that the static condenser is extremely efficient. The losses in the 2300-volt equipment are said to be only ½ per cent of the rated capacity, while the losses in the low voltage equipments are but 3 per cent. The booklet contains a number of charts, diagrams of connections, etc.

Throughout the West

(*Concluded from page 728*)

McKenzie, T. R. Dale, F. J. Leigh and others.

RICHMOND, CAL.—The Bowen Motor Transportation Co., St. Louis, will erect a plant here for the manufacture of gasoline-propelled street cars. Plans include construction of 100 houses for the use of the company's employes.

SAN BERNARDINO, CAL.—The Santa Fe railroad will enlarge its shops here so as to manufacture 30 locomotives a month. The work will be done at an estimated cost of $500,000.

SAN FRANCISCO—The Advanced Engine Co. has been incorporated to manufacture engines, etc., by E. G. Gould, J. Young, W. W. Kergan, L. M. Hall, T. H. Beecher and others.

SAN FRANCISCO—Gimmel Bros. & Glendenning, Inc., has been incorporated to manufacture and deal in calculating and dictating machines, by H. L. Gimmel, D. W. Glendenning and C. L. Gimmel.

Business Changes Announced Recently by the Trade

DWIGHT P. Robinson & Co., Inc., New York, engineers and constructors recently opened branch offices in Montreal, Que., in the Dominion Express building. Alexander C. Parker, vice president, is in charge of the office. The company is a consolidation of Westinghouse, Church, Kerr & Co., Inc., and Dwight P. Robinson & Co., Inc., and has done extensive construction and engineering work in Canada for the Canadian Pacific railway, Canadian Salt Co., Canadian Crocker-Wheeler Co., the Dominion government, the Aetna Explosives Co., and the Grand Trunk railway.

* * *

The American Gas Furnace Co. has concentrated its entire personnel at its main office at Elizabeth, N. J., where its two plants are located. It has discontinued selling through its former sole agents, E. P. Rechhelm & Co., Inc. These changes are part of a plan to place the entire organization of the company, more fully at the disposal of its customers.

* * *

On May 1 the Pittsburgh Stamp Co. Inc., Penn avenue, Pittsburgh, will remove to enlarged quarters at 811-15 North Canal street, Pittsburgh, doubling its space in a modern building.

* * *

Reorganization of the Crosman Stamping Co., Ypsilanti, Mich., is now being effected, and in the future the company will be known as the Peerless Stamping Corp. The capital stock has been increased to $50,000.

* * *

The Hoffman Specialty Co., maker of venting valves, is to move its New York headquarters, with its office force of 50, to Waterbury, Conn. The company has a large research laboratory at the plant of the Scovill Mfg. Co., Waterbury, where all its products are made.

* * *

The W. R. Miller Co., formerly with offices in the House building, Pittsburgh, has moved into its new office building at Boggs and Jasper streets, Mt. Washington, Pittsburgh.

* * *

The charter of the Donald B. Howard Heater Co., Des Moines, Iowa, recently was amended, changing the name of the company to the Success Heater & Mfg. Co., with offices at 1015 Murphy street, Des Moines.

* * *

Advices have been received to the effect the Pittsburgh offices of the Independent Pneumatic Tool Co., Chicago, have been moved from 1208 Farmers Bank building, to 718 Bessemer buildings, Sixth street and Duquesne Way.

HANNA PIG IRON

We are now exclusive sales agents for The Marting Iron and Steel Co., Ironton, Ohio. Inquiries for its celebrated

NELLIE

Foundry, Malleable and Basic Grades should be addressed to our

CINCINNATI OFFICE, 709-10 Union Trust Building

Bessie Silveries and Bessemer-Ferro Silicons Cherry Valley, Buffalo and Zug Foundry and Malleable

Fannie and Dover Basic.

M. A. HANNA & CO.

Sales Agents

CLEVELAND, OHIO

M·A HANNA & Co

Iron and Steel Prices

Iron Ore

Superior Ores, Per Ton, Lower Lake Ports

Old range Bessemer, 55 per cent iron	$7.45
Mesabi Bessemer, 55 per cent iron	7.20
Old range nonbessemer, 51½ per cent iron	6.70
Mesabi nonbessemer, 51½ per cent iron	6.55

Port Henry Iron Ore, f.o.b. Port Henry

Old bed 21 furnace	$5.80
Old bed concentrates, 63 per cent	6.70
Harmony, cobbed, 63 per cent	6.70
New bed, low phos., 65 per cent	9.50
Lump ore for fix	7.00

Manganese Ore

Brazilian, 48 to 50 per cent c.i.f. Atlantic ports, 30 to 35 cents per unit, nominal.

Indian 48 to 50 per cent c.i.f. Atlantic ports, 30 to 35 cents per unit, nominal.

FLUOR SPAR

Washed gravel Kentucky and Illinois mines, per ton $22.50 to 25.00

Warehouse Prices

Steel bars, Boston	3.63c
Steel bars, Chicago	3.48c
Steel bars, Cleveland	3.30c to 3.34c
Steel bars, Detroit	3.43c
Steel bars, Philadelphia	3.20c
Steel bars, New York	3.58c to 3.63c
Steel bars, St. Louis	3.575c
Steel bars, Cincinnati	3.58c
Steel bars, St. Paul	3.76c
Steel bars, Buffalo	3.50c
Steel bars, San Francisco	4.75c
Iron bars, Boston	3.65c
Iron bars, Buffalo	4.20c
Iron bars, Chicago	3.48c
Iron bars, Detroit	3.43c
Iron bars, St. Louis	3.57½c
Iron bars, Cincinnati	3.58c
Iron bars, Philadelphia	3.20c
Iron bars, New York	3.58c to 3.63c
Shapes, Chicago	3.58c
Shapes, Detroit	3.53c
Shapes, Boston	3.60c to 3.73c
Shapes, St. Louis	3.675c
Shapes, St. Paul	3.86c
Shapes, New York	3.68c to 3.73c
Shapes, Cleveland	3.40c to 3.44c
Shapes, Philadelphia	3.30c
Shapes, Buffalo	3.60c
Shapes, Cincinnati	3.68c
Shapes, San Francisco	4.85c
Plates, Buffalo	3.80c
Plates, Chicago	3.78c
Plates, Detroit	3.73c
Plates, Boston	3.93c
Plates, St. Louis	3.875c
Plates, St. Paul	4.06c
Plates, New York	3.88c to 3.93c
Plates, Cleveland	3.60c to 3.64c
Plates, Philadelphia	3.50c
Plates, Cincinnati	3.60c
Plates, San Francisco	5.40c
No. 10 blue anl. sheets, N. Y.	4.78c to 4.83c
No. 10 blue anl. sheets, Phila.	4.40c
No. 10 blue anl. sheets, Chi.	4.68c
No. 10 blue anl. sheets, Clev.	4.30c
No. 10 blue anl. sheets, Boston	5.05c to 5.20c
No. 10 blue anl. sheets, Buf.	4.70c
No. 10 blue anl. sheets, Det.	4.63c
No. 10 blue anl. sheets, St. L.	4.77½c
No. 10 blue anl. sheets, Cin.	4.78c
No. 10 blue anl. sheets, St. P.	4.96c
No. 10 blue an. shts, San Fr.	6.50c
No. 28 black sheets, Chicago	5.73c
No. 28 blk. sheets, New York	5.88c
No. 28 blk. sheets, Phila.	5.70c
No. 28 blk. sheets, Cleveland	5.25c
No. 28 blk. sheets, Boston	6.05c
No. 28 blk. sheets, Cincinnati	5.68c
No. 28 blk. sheets, Detroit	5.60c
No. 28 blk. sheets, St. Louis	5.85c
No. 28 blk. sheets, St. Paul	6.00c
No. 28 blk. sheets, Buffalo	5.75c
No. 28 blk. shts., San Fran.	7.25c
No. 28 galv. sheets, Chicago	7.10c
No. 28 galv. sheets, N. Y.	6.50c to 7.13c
No. 28 galv. sheets, Phila.	7.00c
No. 28 galv. sheets, Boston	6.95c
No. 28 galv. sheets, Cleveland	6.50c
No. 28 galv. sheets, Cincinnati	6.78c
No. 28 galv. sheets, Detroit	6.95c
No. 28 galv. sheets, Buffalo	7.10c
No. 28 galv. sheets, St. Louis	7.20c
No. 28 galv. sheets, San Fran.	8.75c
Bands, New York	4.28c to 4.33c
Bands, Boston	4.33c
Bands, Detroit	4.13c
Bands, Buffalo	5.30c
Bands, San Francisco	5.45c
Hoops, Buffalo	4.20c
Hoops, Boston	5.00c
Hoops, New York	4.58c
Hoops, Detroit	4.13c

Freight Rates

PIG IRON

Mahoning and Shenango valleys to:

Cleveland	$1.96
Newark, N. J.	6.72
Boston	7.28
Philadelphia	6.32
Pittsburgh	1.96
Chicago	5.32
St. Louis	6.44
Minneapolis, St. Paul	7.60

Buffalo to:

Albany, N. Y.	$2.52
New England (rail)	5.46
New York and Brooklyn (rail)	5.46

Virginia furnaces to:

Philadelphia	$5.74
New England	6.58
Brooklyn, Jersey City, Newark	6.16

Birmingham, Ala., to:

Boston	$10.665
Boston (rail and water)	7.65
Cincinnati	4.50
Chicago	6.66
Cleveland	6.66
Louisville, Ky.	4.12
Minneapolis, St. Paul	9.73
New York	10.26
Philadelphia	8.665
Pittsburgh	7.60
Savannah, Ga.	4.25
St. Louis	5.725

Chicago to:

Des Moines	$4.725
Minneapolis, St. Paul	3.375
Milwaukee	0.89
Moline, Ill.	1.89
Omaha	6.07
St. Louis	2.725

Ironton and Jackson, O., to:

Chicago	$5.32
Cincinnati	2.52
Cleveland	3.36
Detroit	3.64
Indianapolis	3.22
Minneapolis, St. Paul	8.40

FINISHED MATERIAL

Pittsburgh, carloads, per 100 lbs., to:

New York	$0.38
Philadelphia	0.35
Boston	0.415
Buffalo	0.295
Baltimore	0.335
Cleveland	0.24
Cincinnati	0.32
Chicago	0.38
Detroit	0.32
Minneapolis and St. Paul	0.66
Denver	1.32
St. Louis	0.475
New Orleans	0.515
Birmingham	0.765
Pacific coast (all rail)	1.665
Pacific coast (tin plate)	1.665

Cold rolled shafting, Buffalo	5.25c
Cold rolled shafting, N. Y.	5.50c to 5.65c
Cold rolled shafting, Boston	5.25c
Cold rolled shaft'g, San Fr.	6.75c
Cold rolled flats, squares and hexagons, New York	6.00c to 6.15c
Cold rolled rounds, Detroit	5.00c

Steel Pipe

Pittsburgh basing discounts to jobbers in carloads

STANDARD WEIGHT
Butt Weld

	Black	Galvanized
⅛, ¼ and ⅜-inch	50½	24
½-inch	54½	40
¾ to 3-inch	57½	44
Lap Weld		
2-inch	50½	38
2½ to 6-inch	53½	41
7 to 12-inch	50½	37
13 to 14-inch	41	
15-inch	38½	

PLUGGED AND REAMED
Butt Weld

1 to 3-inch	55½	42
Lap Weld		
2-inch	48½	36
2½ to 6-inch	51½	39

EXTRA STRONG PLAIN ENDS
Butt Weld

⅛, ¼ and ⅜-inch	46½	29
½-inch	51½	39
¾ to 1¼-inch	55½	43
2 to 3-inch	56½	44
Lap Weld		
2-inch	48½	37
2½ to 4-inch	51½	40
4½ to 6-inch	50½	39
7 to 8-inch	46½	33
9 to 12-inch	41½	28

DOUBLE EXTRA STRONG PLAIN ENDS
Butt Weld

½-inch	42½	32
¾ to 1½-inch	45½	35
2 to 2½-inch	47½	37
Lap Weld		
2-inch	40½	31
2½ to 4-inch	42½	33
4½ to 6-inch	41½	32
7 to 8-inch	36½	23

Wrought Iron Pipe

Pittsburgh basing discounts to jobbers in carloads

THREADS AND COUPLINGS
Butt Weld

	Black	Galvanized
⅛-inch	+	+ ....
¼-inch	+ 5½	+31½
⅜-inch	15½	+11½
½-inch	24½	6½
¾ to 1½-inch	29½	13½
Lap Weld		
1¼ and 1½-inch	+	+ ....
2 and 2½-inch	25½	11½
3 to 6-inch	27½	14½
7 to 12-inch	24½	11½

PLUGGED AND REAMED
Two points less than above
Butt Weld

⅛-inch	+	+ ....
¼-inch	+13½	+46½
⅜-inch	13½	+ 3½
½-inch	23½	10½
¾ to 1½-inch	29½	14½
Lap Weld		
1¼ to 1½-inch	+	+ ....
2 and 2½-inch	26½	13½
3 to 4-inch	28½	16½
4½ to 6-inch	27½	15½
7 to 8-inch	19½	7½
9 to 12-inch	14½	2½

+Price on application.

DOUBLE EXTRA STRONG PLAIN ENDS
Butt Weld

½-inch	+37	+49
⅝-inch	+17½	+29½
1-inch	+33½	+45½
1¼-inch	+17½	+29½
1½-inch	+16½	+28½
Lap Weld		
2 and 2½-inch	+ 2½	+14½
3 to 4-inch	2½	+ 6½
4½ to 6-inch	1½	+ 7½
8-inch	+ 3½	....

Boiler Tubes

STEEL

1¾ and 2-inch	19½
2¼-inch	24
2½ to 3¼-inch	30½
3½ to 4½-inch	40½

IRON

1¾-inch	+10
2-inch	List
2¼-inch	2
2½ and 2¾-inch	6
3 and 3¼-inch	7
3½ to 4½-inch	12